

# RUN

THE COMMODORE 64/128 User's Guide

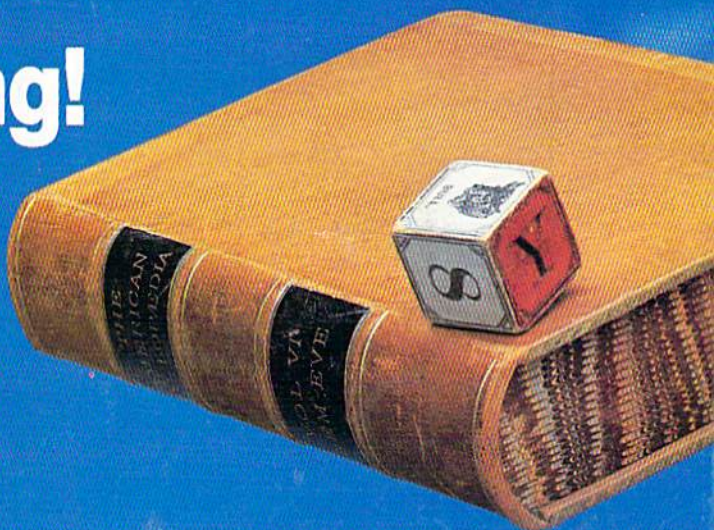
June 1988  
An IDGC/I Publication

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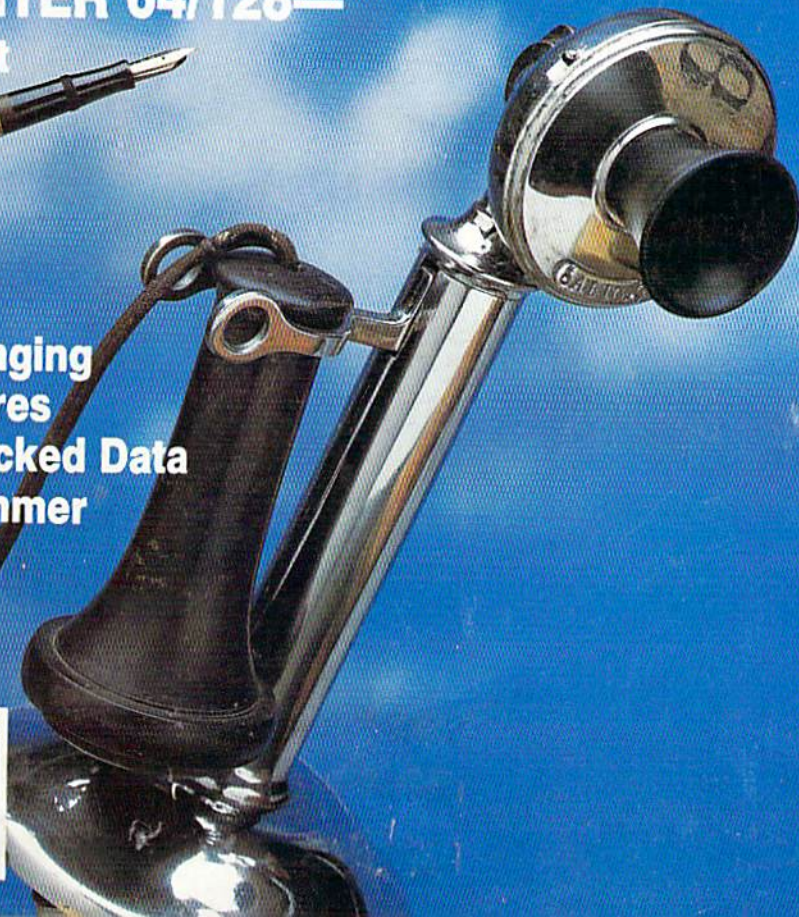
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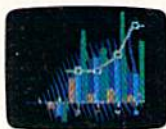
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**Issue 1 Volume 1, June 1988**

### The GEOS Chronicle

**Sideways text.**

**Create fonts up to 192 point.**

**Text can be set in any pattern.**

**Transparent or opaque graphics and text.**

**Scaled and smoothed graphics and fonts.**

**Text automatically flows around graphics.**

**Software Diagnosed With 21 Different Personalities**

**ANCIENT GRAPHIC FOUND WRAPPED IN TEXT!!**

These days, you can find all kinds of programs that call themselves desktop publishers. Oh, one may drop a drawing here or create a column there. But don't let anyone kid you.

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You see, geoPublish is a real desktop publisher. With hundreds more features that unleash your layouts across an endless number of pages, and leave your non-GEOS friends frenzied with frustration.

**“Full featured desktop publishing on the Commodore 64? Including laser printing? If I hadn't seen it with my own eyes on my own Commodore 64, I wouldn't have believed it, either.”**

—MicroTimes, March, 1988

With geoPublish, you pour your geoWrite text into columns and around graphics. Automatically. You can use any of the 21 preset page

layouts or any of the zillions you come up with yourself. After that, it's off to fun city.

The geoPublish toolbox is filled with goodies that help you create all kinds of special effects in almost every area. For example, you can customize over 80 GEOS compatible fonts. In bold, italic, underline, or outline. In any combination you choose. Up to 192 points high.

**“Of the three software packages I used (geoPublish, Personal Newsletter, Outrageous Pages), geoPublish most resembles professional desktop publishing programs.”**

—RUN, March 1988

And that's just what you can do with type. You can also create columns. Boxes. Banners. Enlarge or reduce graphics. Zoom in for detail work. Preview the entire page. And print the whole thing out on a LaserPrinter for a razor sharp look.

Of course, those aren't the only reasons we're excited about geoPublish. It's also because major magazines—like the tough guys at INFO

# D EVERYONE ATURE STORY.

—are raving about it, too. Saying that people will use *geoPublish* "to retire their *Print Shops* and *Print Masters*" and that "*Newsroom* pales in comparison."

## geoPublish Features

### General

- WYSIWYG. What-You-See-Is-What-You-Get.
- Import graphics from *geoPaint*.
- Import graphics from *Print Shop*, *Newsroom*, *Print Master™* using *GEOS Graphics Grabber* (sold separately with *Deskpack Plus*).
- Full page and zoom display modes.
- On-screen rulers, digital cursor control allows exact placement in full page edit modes.

- Library feature for saving master page layouts, product comes with a master page library with several standard layouts.

### Page Layout Mode

- Imports text from any Commodore word processor.
- Flexible design and placement of text columns, column layout, size and combinations can be altered at any time.
- Built-in editor supports full word processing features of *geoWrite 2.1* for text flowed into *geoPublish* columns.
- **Snap to guides** feature allows for easy layout using master page guidelines.
- User-selectable gutters (space between columns).
- Support for unanchored (flow with text) as well as anchored (text flows around) graphics.
- Automatically flows text around graphics and from page to page keeping track of up to 16 separate word processing documents.

### Page Graphic Mode

- Contains a complete object oriented draw program. Graphic tools include:
  - Place picture: Picture can be centered and clipped, scaled to any size, stretched and scaled.
  - Special text: Any font may be output in any point size from 4 to 192 point. Text may also be printed in any style and in any of the 32 *GEOS* system patterns. Text may be printed either horizontally or vertically.
  - Lines, connected lines and curved lines (splines): may be drawn in 8 different thicknesses, have round or square endpoints, and be drawn in 32 different patterns.
  - Rectangles, polygons, circles, and ellipses: may be framed or unframed and filled with any of the 32 system patterns. Frame thickness can also be varied.
  - Any graphic object or group of objects may be selected at any time and moved, cut, resized, brought to the foreground (drawn on top of everything) or pushed to the background (drawn under everything).
  - Automatic smoothing option for pictures and text.
  - All tools work in either full page preview mode or zoom mode.

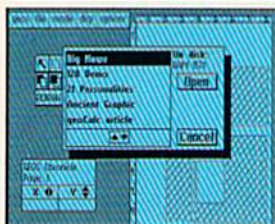
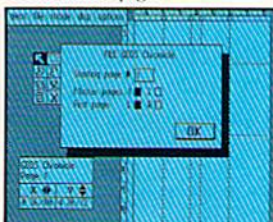
Work in full page preview mode



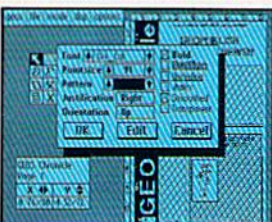
Zoom into actual size



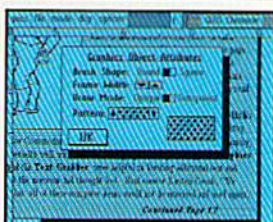
Create master pages



Flow text into columns



Headlines in 4 to 192 points



Easy graphic object manipulation

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So if you're serious about desktop publishing, take a look at *geoPublish*. For Commodore owners, it's the only feature story worth taking seriously.

- Supports over 80 *GEOS* compatible fonts in point sizes ranging from 4 to 192 point (.05" to 2.6").
- Plain, bold, underline, outline, italic, superscript and subscript, and any combination of these typesets allowed for each font.
- Supports dot matrix and Post Script laser printers.
- Supports up to 16 pages in length, larger documents can be created by setting the starting page number.

### Master Page Mode

- Support for left and right master pages.
- Set up to 16 guidelines for aiding graphic and column layout.
- Automatic page numbering can set starting page.
- Automatic date stamping.
- Full graphic tool box for master page graphic design.



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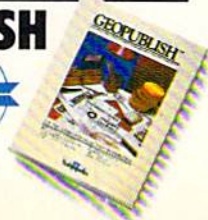
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**GEOPUBLISH**



# RUN JUNE '88



COVER PHOTOGRAPHED BY PAUL AVIS  
STYLIST JANE SUTTON

## F E A T U R E S

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If you're looking for an up-to-date word processor, this survey of five recent releases will help you pick a winner.
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Design and print out forms for your family, club or small business—just the way you want them.
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If you think being a letter carrier is dull, you've never played our action-filled adventure game!
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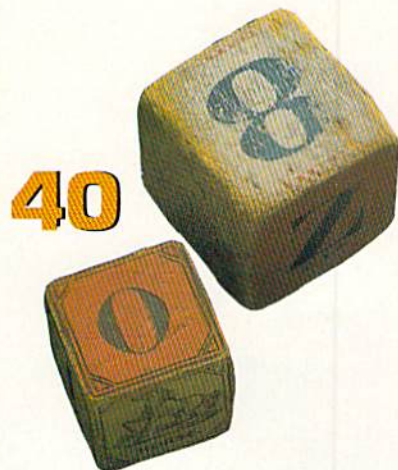
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\* THIS ARTICLE CONTAINS A PROGRAM LISTING. THE PROGRAM IS ALSO AVAILABLE ON THE MAY/JUNE 1988 RERUN DISK. TO ORDER, SEE PAGE 65.

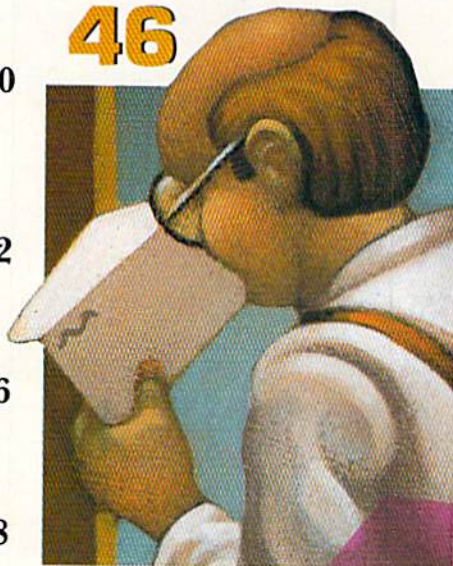
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# RUNNING RUMINATIONS

*Here's your opportunity to help us choose the top software products in the Commodore market.*

## GET OUT AND VOTE!

In this election year, we felt it only appropriate that *RUN* readers get a chance to vote too. So, in this issue, we present an opportunity for you to cast your ballot at the computing polls for the best software candidates in the marketplace.

What's your favorite Commodore game of all time? What's the most useful program you've ever used? What educational program is tops for your kids?

Given the vast library of Commodore software, these are tough questions. So we're asking *RUN* readers to indicate their personal favorites in *RUN*'s reader choice awards.

Here's your chance to choose the top software products in four major categories—entertainment, productivity, education and utility. Select those products that represent a high quality of performance and value in the Commodore market.

By virtue of their reviews, magazines usually have the *first* say about the performance of a product. But it is you, the reader, who ultimately makes or breaks a product—with your support or lack of support for it. This is your opportunity to tell us what products you think are tops.

You'll notice that the ballot on page 24 includes both 64 and 128 products together. So, for example, Vizawrite 128 competes against The Write Stuff for the 64. Regardless of which system you use, your choice for best word processor can be either a 64 or 128 program.

## ABOUT THE BALLOT

Of necessity, selecting the nominees listed on the ballot was neither easy nor democratic. We cut through the caucuses and primaries and went straight to the convention with our choices.

Over the last year, literally thousands of computer programs have been released for the 64 and 128, and, obviously, no one can keep up with all of them. *RUN* editors sifted through hundreds of releases and reviews, and we relied heavily on our own familiarity with the products.

The selection process was partly personal—how do we, and our computer friends and associates, feel about this program—and partly scientific—what kind of reaction has this program received from reviewers and the consumer public?

*RUN* editors listed those products that we thought were significant in their category. We tried to keep the list as current as possible, restricting it to products released within the last year. However, we soon realized that this was impossible, since there are many "classics" that warrant consideration. For example, several new flight and naval simulations have surfaced during the recent year. We've included these, as well as the tried-and-true classics for this genre that computerists have used for years.

There were many products—considered outstanding at the time of their release—that have since become outdated and were thus not included. There may also be some products that have recently hit the market after this list was compiled.

We've anticipated that, in some cases, you won't agree with our choices.

If you don't see your favorite listed, write in the choice you feel would be most appropriate. These awards are an attempt to recognize those products that represent a high quality of performance and ease of use in the Commodore market.

## RULES

The rules of the voting are simple. Go through the list of products and vote (by placing a check mark in the appropriate box in each category, or writing in your choice on the line provided) for those products that you feel are tops in their category. Fill out the ballot, including your name and address and whether you are a *RUN* subscriber, tear out the page from the magazine and send it in.

Vote for only one product per category. It doesn't necessarily have to be software you own or use every day. This is not a survey of reader ownership. You can vote for a product simply on the

basis of having seen it demonstrated on a friend's computer system or at a user group meeting.

Other rules to follow:

—write-in votes should be for only commercially available products.

—please enter the contest only once; we don't want any ballot-stuffing.

—no photocopies of the ballot will be accepted; we will tabulate only originals from the magazine.

—include your name and address on the ballot.

—indicate whether or not you subscribe to *RUN* magazine.

—send in your ballot by July 15, 1988.

—send your ballots to:

RUN Software Contest  
80 Elm St.

Peterborough, NH 03458

We hope that readers will take the time to participate in this voting process. Results of the contest and an analysis of the voting will be published in the December issue of *RUN*. Please don't call with queries before then.

As always, we welcome your suggestions for improving this process.

## MICKEY MOUSE COMPUTING

Walt Disney World in Florida appears to be a popular attraction for home computerists.

According to a recent poll of visitors to the Epcot Center, nearly one-third have a home computer. Midwesterners, with 32%, boast the largest percentage of computer ownership, followed by southerners, northeasterners and westerners.

And what kinds of computers are these Mouseketeers using? According to the survey of 1,844 U.S. adults conducted Jan. 20–Feb. 2, 1988, 28 percent of those with home computers are using MS-DOS machines, while 21 percent of that group of users said that they were Commodore owners.

With the popularity of IBM PC or PC clone machines among Walt Disney World visitors, perhaps they should change the name of the operating system from MS-DOS to mouse-DOS.

—Dennis Brisson  
Editor-in-Chief

# WHAT'S A TAITO?..



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And every action game we put our name on is more than just competitive confrontation. Taito games are all about the values of good triumphing over evil, of being the best you can be—games like *Arkanoid™*, *Renegade™*, *Alcon™*, *Rastan™*, and *Bubble Bobble™*. And we have more arcade blockbusters like *Operation Wolf™*, *Sky Shark™*, and *Gladiator™* coming soon to software formats for play on your home computer. Taito's home-bound hit parade of video fun has just begun.

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\*If you think you've got the technical and creative ability to develop mind-blowing video games, write to Taito, Attention: Product Development, at the above address.

# MAGIC

*Magic readers improve some previously published programs and offer indented loops and numeric-expression input.*

Compiled by TIM WALSH

## \$4A0 C-64 CHARACTER MISCHIEF

Fancy screen effects are nothing new on the C-64; programmers have been performing them for years. Here's a new one that could be called bizarre, unique, odd, unusual... well, let's just say it defies description. Letter characters will perform this scrolling effect, and you can change the speed by entering POKE 49273, followed by a comma, and then any number from 1 to 255, with 1 being fastest.

Type it in, give it a try, and you're certain to agree that there is nothing like it. Since the routine can be repeatedly activated with SYS 49152, you can easily incorporate it into menus, text adventures and games. Think of the possibilities!

```
Ø REM MAGICAL CHARACTER SCROLL - JEFF MART
IN :REM*29
1Ø FOR I=49152 TO 49285:READD:POKE I,D:CK=
CK+D:NEXT :REM*162
2Ø IF CK<>18682 THEN PRINT"ERROR IN DATA..
." :END :REM*62
3Ø FORC=1TO24:FOR S= 65 TO 9Ø:PRINT CHR$(S
);:NEXT:NEXT :REM*234
4Ø PRINT:PRINT"{CTRL 2}{2 CRSR DNS}PRESS A
KEY FOR MAGICAL SCROLL{COMD 7}" :REM*237
5Ø GETA$: IF A$="" THEN 5Ø :REM*13 ▶
```

## TRICK OF THE MONTH

### \$4A1 AUTOMATICALLY INDENTING FOR-NEXT LOOPS

Structured programming always stresses the importance of indenting For-Next loops so that a programmer can find them quickly in a listing. Placing a colon before the statement(s) within a For-Next loop is the only way the C-64's interpreter will accept indentations. Here's an example of an indented loop:

```
10 FOR T=1 TO 10
20 : PRINT T
30 NEXT
```

While this method improves program clarity, it also quickly devours precious memory. To eliminate this problem, I wrote the 64 For-Next Indenter program. After typing in and running this utility, program lines containing For-Next statements will automatically indent without losing any valuable memory when you list a program to the screen.

For a demonstration of how this program works, run Listing 1 and type in and list Listing 2 to the screen. Always bear in mind that in order for this program to work properly, your listings must adhere to one basic rule: The For and Next statements must be the only statements in a line. For added versatility, the program is designed so that pressing run-stop/restore won't deactivate the routine.

```
Ø REM FOR/NEXT LOOP INDENTER - SCOTT WEISGA
ARBER :REM*99
1Ø FORT= 828 TO 958 :REM*212
2Ø READ A :REM*28
3Ø POKE T,A :REM*231
4Ø X=X+A :REM*223
5Ø NEXT :REM*18Ø
```

```
6Ø IF X<>19344 THENPRINT"ERROR IN DATA...
":END :REM*211
7Ø POKE 1Ø2Ø,Ø:SYS936:SYS828:POKE 42731,1
37:POKE 42732,3 :REM*87
8Ø DATA 169,75,141,6,3,169,3,141,7,3,169,
Ø,133,251,96,8,133,252,132,253:REM*175
9Ø DATA 134,254,173,141,2,2Ø8,251,165,252
,2Ø1,129,2Ø8,9,238,252,3,238 :REM*25
1ØØ DATA 252,3,76,123,3,2Ø1,13Ø,2Ø8,17,16
9,2Ø,32,21Ø,255,32,21Ø,255 :REM*87
11Ø DATA 173,252,3,56,233,2,141,252,3,169
,54,133,1,166,254,164,253,4Ø :REM*159
12Ø DATA 165,252,76,26,167,32,2Ø5,189,8,1
33,252,134,253,132,254,169,32 :REM*84
13Ø DATA 172,252,3,24Ø,6,32,21Ø,255,136,2
Ø8,25Ø,4Ø,164,254,166,253,165 :REM*17
14Ø DATA 252,96,162,32,169,16Ø,16Ø,Ø,133,
252,132,251,177,251,145,251 :REM*114
15Ø DATA 2ØØ,2Ø8,249,23Ø,252,2Ø2,2Ø8,244,
96 :REM*62
```

```
Ø REM SAMPLE FOR/NEXT TEST - SCOTT WEISGA
RBER :REM*193
1Ø FOR T= 1 TO 5 :REM*119
2Ø FOR Y= 5 TO 1 STEP -1 :REM*47
3Ø PRINT Y,T :REM*62
4Ø PRINT T,Y :REM*82
5Ø NEXTY :REM*1Ø3
6Ø NEXT T :REM*1Ø3
```

—SCOTT WEISGARBER, MONROEVILLE, NJ

# C-128 NEWS



## PAGE ILLUSTRATOR

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# MAGIC

```
60 SYS 49152:GOTO 30 :REM*97
70 DATA 169,48,133,52,133,56,173,14,220,41
,254,141,14,220,165,1,41,251 :REM*177
80 DATA 133,1,169,0,133,252,133,254,169,20
8,133,255,169,48,133,253,160,0 :REM*70
90 DATA 177,254,145,252,230,254,208,2,230,
255,230,252,208,2,230,253,165 :REM*105
100 DATA 253,201,50,208,234,165,1,9,4,133,
1,173,14,220,9,1,141,14,220 :REM*207
110 DATA 173,24,208,41,240,24,105,12,141,2
4,208,169,48,133,253,162,0,160 :REM*58
120 DATA 216,177,252,72,136,177,252,200,14
5,252,136,192,8,208,245,104 :REM*91
130 DATA 145,252,232,238,60,3,208,3,238,61
,3,173,61,3,201,5,208,241,169 :REM*224
140 DATA 0,141,61,3,224,209,208,212,96
:REM*88
```

—JEFF MARTIN, ROSEVILLE, CA

## \$4A2 UPDATE FOR 64 DOS SHELL

64 DOS Shell by John Ryan (November 1987) is a versatile disk utility and programming aid for the C-64 that matches the usefulness of Commodore's 1571 DOS Shell for the C-128. Yet, every program has room for improvement.

Place my 64 DOS Shell Boot on a disk containing 64 DOS Shell and run it. It will automatically load, protect and initialize 64 DOS Shell. All you have to do is press the restore key to activate the program.

```
0 REM 64 DOS SHELL BOOT - MARK WOLTER
:REM*169
10 PRINT CHR$(142):PRINT "BOOTING 64 DOS S
HELL..." :REM*102
20 SYS 57812 "ML DOS SHELL",8,1:POKE780,0:
SYS65493 :REM*17
30 POKE 51,44:POKE 52,135:POKE 55,44:POKE
56,135:CLR :REM*73
40 SYS 34500:REM INITIALIZE :REM*183
50 PRINT CHR$(147)"DOS SHELL INSTALLED"
:REM*196
60 PRINT"TO ACTIVATE, PRESS (CTRL 9)RESTOR
E{CTRL 0} KEY":NEW :REM*145
```

—MARK A. WOLTER, BRAUNSCHWEIG, WEST GERMANY

## \$4A3 HIDE YOUR 64 LISTINGS AWAY

Newcomers to Commodore computing eventually encounter a lengthy program that reveals only a single line of code, such as 10 SYS 2068, when they attempt to list it to the screen.

Since such coding represents an excellent way to hide program listings from prying eyes, I've engineered an easy-to-use method of converting Basic programs to a similar format.

First, type in the listing below and save it to disk. Next, enter these commands in C-64 Direct mode:

```
POKE43,1:POKE44,8:POKE8192,0:POKE8193,0:NEW
```

Now load my program and run it. Don't worry if a syntax error appears. After the Ready prompt appears, enter these Pokes:

```
POKE43,1:POKE44,8
```

Now list the program to the screen, and run it again. Finally, list the program again and heed the message that appears at the beginning of the new listing. Now load in any Basic program, and add a line 0. Since the name of the game here is program security, line 0 might consist of:

```
0 POKE 808,239:POKE 792,193
```

which disables the C-64's run-stop/restore keys. Now enter the following two Pokes in Direct mode:

```
POKE 43,1:POKE 44,8
```

You're ready to save your program to disk. On all future loads, listing that file to the screen will produce a line number followed by a SYS command.

```
0 REM 64 HIDDEN BASIC LISTINGS - STEPHEN C
HEUNG :REM*135
10 FOR T= 2049 TO 2139:READ D:CK=CK+D:POKE
T,D:NEXT :REM*153
20 IF CK<> 5799 THEN PRINT"ERROR IN DATA S
TATEMENTS...":END :REM*33
30 DATA 11,8,196,7,158,50,48,54,49,0,0,0,1
69,30,133,43,76,113,168,78,65 :REM*177
40 DATA 82,68,73,78,65,32,211,0,60,8,0,0,1
28,58,143,69,77,66,69,82,32,84 :REM*43
50 DATA 79,32,77,65,75,69,32,65,32,76,73,7
8,69,32,48,0,90,8,10,0,151,32 :REM*68
60 DATA 51,44,49,32,175,32,167,32,148,32,8
9,79,85,82,32,80,82,79 :REM*90
70 DATA 71,82,65,77,0,0,0 :REM*196
```

—STEPHEN CHEUNG, DEER PARK, NY

## \$4A4 SATELLITE TRACKERS: YOUR DATE HAS ARRIVED

Most segments of government and communications rely on the Greenwich time coupled with the Julian date calendar to reduce confusion caused by time zones. The Julian date consists of the last two digits of the year followed by the day of the year, with January 1, 1988 being 88001, January 2 being 88002, and so on.

A group of RUN readers in Florida who track satellites and read NASA-prediction bulletins requested that I modify Calendar Maker (see Easy Applications, January 1988) to automatically print the last three digits of the Julian date (001, 002, etc.) as the last memo of each day. Satellite trackers everywhere can add the following lines to their Calendar Maker listing. Happy tracking!

```
0 REM CALENDAR MAKER UPDATE (DAY OF YEAR)
LINES 445-658 - BOB KODADEK :REM*235
445 GOSUB 654 :REM*33
651 IF (YR/4)-INT(YR/4)=0 THEN ND(2)=29
:REM*74
652 RETURN :REM*25
653 : :REM*197
654 PRINT"PLEASE WAIT...":PRINT :REM*170
655 DZ=0:FOR I=0 TO 11:DZ=DZ+ND(I):DA(I)=D
Z:NEXT :REM*80
656 FOR I=1 TO ND(MO):XM$(I+J,5)=STR$(DA(M
O-1)+I) :REM*120
657 IF LEN(XM$(I+J,5))<10 THEN XM$(I+J,5)=
```

## MAGIC

```
XM$(I+J,5)+CHR$(32):GOTO 657 :REM*42
658 NEXT :REM*23
```

—BOB KODADEK, ASTON, PA

### \$4A5 C-64 NUMERIC-EXPRESSION INPUT

Every C-64 programmer occasionally has had need for a numeric-expression Input routine in their programs. But just what, you might ask, is a numeric-expression Input routine? Simple: It is a routine that allows Input statements to accept and calculate equations such as  $3*4+2,(8/2)$  and any other valid expression.

You don't have to be a programmer, though, to appreciate the benefits of a numeric-expression Input routine. Let's suppose you need to input the total cost of thirteen widgets at \$45.66 each, factor in seven percent sales tax, and you don't have a calculator handy. Entering the following equation into a numeric-expression Input routine would instantly calculate your answer:

1.07(13\*45.66)

To use this routine in your own programs, include lines 60000 to 60030 and GOSUB 60000. The input value will be returned in the variable E.

```
Ø REM C-64 NUMERIC EXPRESSION INPUT - RICH
ARD PENN :REM*54
1Ø PRINTCHR$(147)"PLEASE ENTER AN EXPRESSI
ON";:GOSUB 6ØØØØ :REM*93
2Ø PRINT"THE VALUE YOU ENTERED IS";E
:REM*222
3Ø END :REM*158
6ØØØØ INPUT E$ :REM*48
6ØØ1Ø POKE 2,PEEK(646):POKE 646,PEEK(647):
PRINT"E=";E$;:GOTO6ØØ3Ø :REM*219
6ØØ2Ø POKE 631,145:POKE 632,145:POKE 633,1
45:POKE 634,13:POKE 198,4:END
:REM*151
6ØØ3Ø POKE 646,PEEK(2):PRINT"{CRSR UP}";:R
ETURN :REM*187
```

—RICHARD PENN, MONTREAL, QUEBEC, CANADA ■

*Magic is the original column of reader-submitted hints and tips. Each month we present brief, useful computer tricks to help you get the most out of your Commodore system—whether you're a beginning or advanced computerist, a C-64 or C-128 owner. Magic is a forum for RUN's imaginative and inventive readers to share their programming tips, brief software or hardware modifications, shortcuts or items of general interest. If you have an idea to make computing easier, faster, more exciting and enjoyable, send it to:*

Magic  
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Peterborough, NH 03458

RUN pays \$10 to \$40 for each trick published in the column. A payment of \$50 and a Magic Contributor T-shirt is awarded for the Trick of the Month. To be eligible, the Trick of the Month must be for the C-64 or the C-64 and C-128. Tricks for C-128 mode only are not eligible for Trick of the Month.

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Computer's Gazette,  
Dec., 1987

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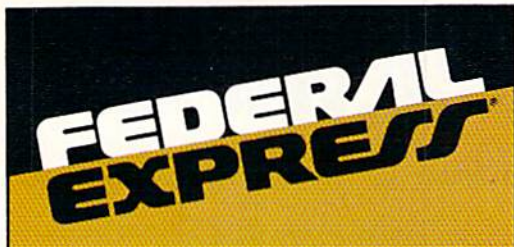
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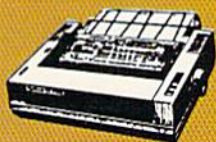
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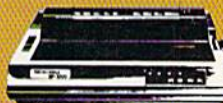
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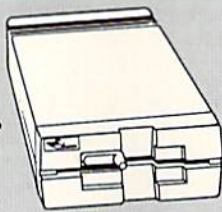
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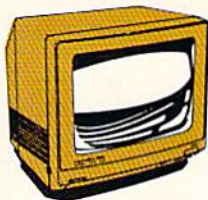


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688



# NEWS AND NEW PRODUCTS

*Print out coloring book pages, take a trip to Washington, DC, and explore a Dark Castle.*

Compiled by HAROLD R. BJORNSEN

## A SHOW OF HANDS

LAGRANGE, IL—Free Spirit Software (905 West Hillgrove Rd., Suite 6, LaGrange, IL 60525) has released two educational programs.

Easy Sign aids in the learning of sign language for the deaf. A phrase or sentence typed in is displayed on the monitor in hand signs. The student may practice the alphabet, words or sentences. This C-64 tutorial is available for \$19.95.

The Number Show uses scenes and animation to introduce numbers to preschool and kindergarten children. The program's exercises drill in number skills and reinforce learning. You can see this C-128 show for \$19.95.

Check Reader Service number 400.

## TEACH OR LEARN ACCOUNTING

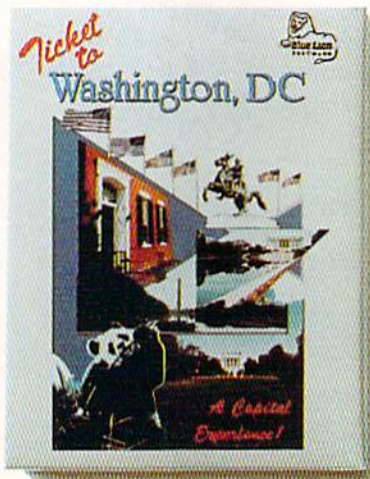
NEEDHAM, MA—Pro Tutor Accounting is a C-128 tutorial designed to help students, new employees and self-learners master basic accounting principles. It contains over 3000 questions in such areas as debits and credits, journalizing and balance sheets and simulates ledgers, T-accounts and other forms. It also keeps track of correct and incorrect answers, shows where mistakes were made and points out the student's strengths and weaknesses.

Two versions of Pro Tutor Accounting are available: the home and business version, for \$99, and the educational version, which includes teacher utilities for tabulating test scores, for \$249. Professional Software, Inc., 51 Fremont St., Needham, MA 02194.

Check Reader Service number 401.

## A CAPITAL EXPERIENCE

CAMBRIDGE, MA—Ticket to Washington, DC, a C-64 travelogue from Blue Lion Software (90 Sherman St., Cambridge, MA 02140), takes you to more than 45 different places in and around our nation's capital, from museums and Capitol Hill to Georgetown's cobbles



**There are more than 14 mysteries for you to solve in Blue Lion Software's Ticket to Washington, DC.**

stones and Mount Vernon. You can picnic on the Mall, take an excursion to Arlington national cemetery and visit the historic memorials.

In addition to sightseeing, you're challenged to discover the identities of famous Americans from the past and present. Seven detailed 3-D maps and on-screen information are available to help you in your search. Buy a Ticket to Washington for \$34.95.

Check Reader Service number 404.

## FORE THE PROS

MARATHON, NY—The Golf Package disk for the C-64 contains programs for every golfer, from the hacker to the serious statistician. Several of the programs keep records of scores and calculate handicaps for as many as 250 golfers. Included is the USGA system (U.S.), the RCGA system (Canada) and the SSS system (Great Britain, Ireland and Australia). The Callaway system and a nine-hole league handicapping system round out the programs for handicap calculation.

The individual golfer who wants to track his or her progress in several im-

portant areas of the game can select Golf Stats, which keeps records of putts, drives in fairway and sand saves, and then reports averages for the last 10, 30 and 100 rounds played. The package is available for \$19.95 from McConnell Software, PO Box 652, Marathon, NY 13803.

Check Reader Service number 405.

## INDOOR YOUTH SOCCER TOURNAMENT

CHICAGO—Mindscape, Inc., publisher of software for the Commodore computers, and the Chicago Sting co-sponsored the first-ever national indoor youth soccer tournament back in late February. Dubbed the Mindscape Cup, the contest was a double-elimination contest between youth all-stars chosen by each Major Indoor Soccer League team. Competitors traveled from as far away as Baltimore, Dallas and San Diego.

Eleven teams, each made up of twelve boys under the age of 14, played in the preliminary round. The championship round pitted the Chicago Sting against the Cleveland Force, with the Sting prevailing. The championship was played at the Sting's home field, the Rosemont Horizon.

Mindscape President and CEO Roger Buoy presented the Mindscape Cup to the Chicago team. At a brunch honoring all participants, Buoy spoke about the bright future for youth soccer in America and reaffirmed his company's commitment to continuing the Mindscape Cup. "Mindscape is dedicated to supporting and promoting youth sports, and I'm a firm believer that soccer is an exceptional way to bring young people together."

## THREE FROM SCORPION

LAKE HOPATCONG, NJ—Scorpion (19 Harbor Drive, Lake Hopatcong, NJ 07849) has released three new C-64 products for \$29.95 each.

Alien Destruction Set, an arcade game, challenges players with four space



adventures requiring varying skills, such as quick puzzle-solving logic and fast space-combat reflexes.

Mandroid, also an arcade game, contains two adventures. You control Mandroid, half man and half machine, in his mission to infiltrate an enemy complex and save seven astronauts or as he tries to stop an evil scientist from creating an army of deadly soldiers.

Masterpiece, a graphics package, lets you move, copy, scale, rotate, twist and fold onscreen artwork. Other features include picture compression to save memory and loading Masterpiece pictures from Basic.

Check Reader Service number 408.

## LOGO PROBABILITY

MALDEN, MA—Logo Probability, part of a continuing series of educational products from Terrapin (376 Washington St., Malden, MA 02148), gives math students the opportunity to try their own ideas, examine results, make predictions and test hypotheses as they explore counting techniques, sample sizes, dependent and independent events, combinations and permutations, fairness, graphing and estimation, and using the Logo language.

The package, for the C-64, is designed to accompany several popular middle school and high school mathematics texts, including series published by Macmillan, Houghton Mifflin and Merrill. It includes student booklets, a teacher's guide and a disk. Logo Probability is written for use with Terrapin Logo and sells for \$23.95 with one student booklet, \$34.95 with eight booklets and \$59.95 with 25. Additional booklets are \$17.95 (set of eight) and \$49.95 (set of 25).

Check Reader Service number 409.

## STEALTH MISSION

CHAMPAIGN, IL—SubLogic (713 Edgebrook Drive, Champaign, IL 61820) has released Stealth Mission, a flight simulator with eight different missions and ten skill levels. The program includes automatic landing and refueling systems and

a real-time pause feature. You have a choice of three different jets to fly: the F-19 Stealth fighter, the experimental forward-swept-wing X-29 and the Navy F-14 Tomcat. The package is compatible with the company's scenery disks and provides complete VOR, ILS, ADF and DME avionics for cross-country navigation. Stealth Mission is available for the C-64 for \$49.95.

Check Reader Service number 410.

## PRINT A COLORING BOOK

PALATINE, IL—Coloring Book Page Maker, for the C-64, lets users of Broderbund Software's The Print Shop expand three-block, non-Commodore printer graphics files into full-screen-size Print Shop Screen Magic files. These files can then be printed with Print Shop's standard Screen Magic file-print utility to produce coloring book-like graphics for children to color in. Themes include holidays, sports and animals. Color this package inexpensive at \$7.95, from MicroAds, 145 East Norman Drive, Palatine, IL 60067.

Check Reader Service number 402.

## RESCUE YOUR SPIKE-HAIRED GIRLFRIEND

SAN JOSE, CA—Data East USA (470 Needles Drive, San Jose, CA 95112) has released Kid Niki for the C-64. Based on the coin-op version also developed by Data East, this one- or two-player ninja adventure game lets you become a radical fighter battling to save your spike-haired girlfriend. You must wield your sword to conquer dragons, evil monsters and ancient warriors at each of the seven levels, until finally rescuing the girl from the Stone Wizard. Your adventure will cost \$29.95.

Check Reader Service number 403.

## DARK CASTLE

CAMPBELL, CA—The C-64 version of Dark Castle, an arcade-action game, has been released by Three-Sixty (2105 S. Bascom Ave., Suite 290, Campbell, CA

95008). Set in medieval times, the game features a hero who must fight his way through 14 different rooms, warding off plague-infested rats, attacking bats and a fire-breathing dragon, among other dangers. Players control their hero with the keyboard or joystick, at one of three levels of difficulty. Enter the Castle for \$34.95.

Check Reader Service number 406.

## CALC GOES ONLINE

RINDGE, NH—Margaret Morabito, former associate editor at *RUN* and promoter of educational uses of Commodore computers, has announced that her Computer-Assisted Learning Center (CALC) newsletter is now available online through QuantumLink's Learning Center, in the Parent-Teacher Information Exchange section. Q-Link members who subscribe can download the monthly newsletter and hundreds of public domain and shareware education programs for the C-64, C-128, VIC-20, PET, Amiga and PC-10 computers. The cost is \$15 a year. For more information, contact CALC, PO Box 132, Rindge, NH 03461.

Check Reader Service number 411.

## CALLING ALL SOFTWARE PUBLISHERS

COLUMBUS, OH—The CompuServe online information service (PO Box 20212, Columbus, OH 43220) is calling all software publishers to join Softex, the company's online delivery system for retailing commercial programs for personal computers.

"Softex offers publishers a way to market their products efficiently to a large, upscale, computer-literate audience," said David Paul, product marketing associate. "By choosing to market products in the Softex online catalog, publishers can reach CompuServe's more than 400,000 subscribers."

Products purchased through Softex are delivered electronically, then subscribers are billed for them by CompuServe. ■

# RUN's READER CHOICE AWARDS BALLOT

Readers, here's your chance to vote for your favorite Commodore software products. This ballot includes the most popular software categories, and you should vote for the product you consider tops in quality and performance in each category. Just place a check mark in the appropriate box or write in your choice on the line provided. Note: This is not a reader ownership survey. You don't have to own a product to vote for it, but you should be familiar with what it does and how well it works.

The rules of the voting are as follows:

- ▶ Vote for only one product per category. ▶ Only original ballots, not photocopies, will be recognized. ▶ Only one ballot per reader.
- ▶ Votes should be cast only for commercially available software, not public domain programs.
- ▶ Send your ballot, before July 25, 1988, to: RUN Software Contest, 80 Elm St., Peterborough, NH 03458
- ▶ Results of the voting will be published in the December 1988 issue of RUN. Thank you for your participation.

## ENTERTAINMENT

### ARCADE ADVENTURES

- 5-1  Airborne Ranger (MicroProse)
- 2  Alternate Reality series (Datasoft)
- 3  Cauldron (Broderbund)
- 4  Defender of the Crown (Cinemaware)
- 5  Elite (Firebird)
- 6  Frankie Goes to Hollywood (Firebird)
- 7  Infiltrator series (Mindscape)
- 8  Moebius (Origin)
- 6-1  Pirates! (MicroProse)
- 2  Robot Rascals (Electronic Arts)
- 3  The Last Ninja (Activision)
- 4  The Movie Monster Game (Datasoft)
- 5  The Three Stooges (Cinemaware)
- 6  The Train (Accolade)
- 7  Other \_\_\_\_\_

### ARCADE GAMES

- 7-1  Archon (Electronic Arts)
- 2  Beach Head (Access)
- 3  Boulder Dash series (Electronic Arts)
- 4  Dan Dare (Electronic Arts)
- 5  Delta Patrol (Electronic Arts)
- 6  Fairlight (Mindscape)
- 7  GeeBee Air Rally (Activision)
- 8  Into the Eagle's Nest (Mindscape)
- 9  Marble Madness (Electronic Arts)
- 0  Rad Warrior (Epyx)
- x  Skyfox II (Electronic Arts)
- y  Other \_\_\_\_\_

### GRAPHICS ADVENTURES

- 8-1  Accolade's Comics
- 2  Guild of Thieves (Firebird)
- 3  Maniac Mansion (Activision)
- 4  The Pawn (Firebird)
- 5  Other \_\_\_\_\_

### ROLE-PLAYING ADVENTURES

- 9-1  Alter Ego (Activision)
- 2  Bard's Tale series (Electronic Arts)
- 3  Beyond Zork (Infocom)
- 4  Mind Mirror (Electronic Arts)
- 5  Phantasia series (SSI)
- 6  Ultima series (Origin)
- 7  Wizard's Crown (SSI)
- 8  Other \_\_\_\_\_

### SIMULATIONS

- 10-1  Apollo 18 (Accolade)
- 2  Chuck Yeager's Advanced Flight Trainer (Electronic Arts)
- 3  Echelon (Access)
- 4  Flight Simulator II (SubLogic)
- 5  Gunship (MicroProse)
- 6  Jet (SubLogic)
- 7  Project: Stealth Fighter (MicroProse)
- 11-1  Silent Service (MicroProse)
- 2  Stealth Mission (SubLogic)
- 3  Super Huey II (Cosmi)
- 4  Test Drive (Accolade)
- 5  Thunderchopper (ActionSoft)
- 6  Up Periscope! (ActionSoft)
- 7  Other \_\_\_\_\_

### SPORTS GAMES

- 12-1  California Games (Epyx)
- 2  Championship Baseball (Activision)
- 3  Football (Software Simulations)
- 4  Hardball! (Accolade)
- 5  Indoor Sports (Mindscape)
- 6  LeaderBoard series (Access)
- 7  MicroLeague Baseball (Micro-League Sports Assn.)
- 8  Pure-Stat Baseball (Software Simulations)
- 9  Superstar Ice Hockey (Mindscape)
- 0  4th & Inches (Accolade)
- x  10th Frame (Access)
- y  Other \_\_\_\_\_

### STRATEGY GAMES

- 13-1  Battlefront (Electronic Arts)
- 2  Gulf Strike (Avalon Hill)
- 3  President Elect (SSI)
- 4  Rebel Charge at Chickamauga (SSI)
- 5  Roadwar 2000 (SSI)
- 6  The Sentry (Firebird)
- 7  Tracker (Firebird)
- 8  Other \_\_\_\_\_

### TEXT ADVENTURES

- 14-1  A Mind Forever Voyaging (Infocom)
- 2  Bureaucracy (Infocom)
- 3  Hitchhiker's Guide to the Galaxy (Infocom)
- 4  Hollywood Hijinx (Infocom)
- 5  Leather Goddesses of Phobos (Infocom)
- 6  Nord and Bert Couldn't Make Head or Tail of It (Infocom)
- 7  Plundered Hearts (Infocom)
- 8  Seastalker (Infocom)
- 9  Wishbringer (Infocom)
- 0  Zork trilogy (Infocom)
- x  Other \_\_\_\_\_

### EDUCATION

- 15-1  Bank Street School Filer & Databases (Sunburst)
- 2  Carmen Sandiego series (Broderbund)
- 3  Cave of the Word Wizard (Timeworks)
- 4  Chem Lab (Simon & Schuster)
- 5  Ladders to Learning (McGraw-Hill)
- 6  MacBeth (Avalon Hill)
- 7  Speed Reader series (Davidson)
- 8  Stickybear series (Weekly Reader)
- 16-1  Success with Math series (CBS)
- 2  Talking Teacher (Firebird)
- 3  Teddy Bear, rels of Fun (DLM)
- 4  The Accelerated Reader (Readup)
- 5  The Perfect CollegeScore (Mindscape)
- 6  Typing Tutor IV (Simon & Schuster)
- 7  Whole Brain Spelling (SubLogic)
- 8  Other \_\_\_\_\_

### PRODUCTIVITY

- TELECOMMUNICATIONS
- 17-1  Bobstern Pro (Progressive Peripherals)
- 2  Prototerm (Briwall)

- 3  Speedterm (Abacus)
- 4  Other \_\_\_\_\_

### DATABASES

- 18-1  Data Manager (Timeworks)
- 2  Filer's Choice (Activision)
- 3  Fleet Filer (PSI)
- 4  geoFile (Berkeley Softworks)
- 5  Pocket Filer 2 (Digital Solutions)
- 6  Superbase (Progressive Peripherals)
- 7  Other \_\_\_\_\_

### DESKTOP/TABLETOP PUBLISHING

- 19-1  Color Mail (Hallmark)
- 2  Create with Garfield (DLM)
- 3  geoPublish (Berkeley Softworks)
- 4  Hi-Tech Expressions series
- 5  Newsroom (Springboard)
- 6  Outrageous Pages (Electronic Arts)
- 7  PaperClip Publisher (Electronic Arts)
- 8  Personal Newsletter (Softsync)
- 9  PrintMaster (Unison World)
- 0  The Print Shop (Broderbund)
- x  Other \_\_\_\_\_

### GRAPHICS (DRAWING)

- 20-1  The Advanced OCP Art Studio (Firebird)
- 2  CAD 3-D (IHT)
- 3  CAD PAK 128 (Abacus)
- 4  Color Me (Mindscape)
- 5  Doodle! (City Software)
- 6  Flexidraw (Inkwell)
- 7  Home Designer 128 (Briwall)
- 8  KoalaPainter (Koala)
- 9  Other \_\_\_\_\_

### INTEGRATED SOFTWARE

- 21-1  Fleet System (PSI)
- 2  GEOS (Berkeley Softworks)
- 3  Personal Choice series (Activision)
- 4  Pocket series (Digital Solutions)
- 5  Vizastar 128/Vizawrite 128 (Progressive Peripherals)
- 6  Other \_\_\_\_\_

### SPREADSHEETS

- 22-1  geoCalc (Berkeley Softworks)
- 2  Multiplan (Epyx)
- 3  Planner's Choice (Activision)
- 4  Pocket Planner 2 (Digital Solutions)
- 5  Swiftcalc (Timeworks)
- 6  Vizastar 128 (Progressive Peripherals)
- 7  Other \_\_\_\_\_

### WORD PROCESSING

- 23-1  Fleet System IV (PSI)
- 2  FontMaster 128 (Xetec)
- 3  geoWrite Workshop 128 (Berkeley Softworks)
- 4  PaperClip III (Electronic Arts)
- 5  Pocket Writer 2 (Digital Solutions)
- 6  Superscript 128 (Progressive Peripherals)
- 7  The Write Stuff (Busy Bee)
- 8  VizaWrite 128 (Progressive Peripherals)
- 9  Writer's Choice (Activision)
- 0  Other \_\_\_\_\_

### UTILITY

#### MULTIFUNCTION ADD-ONS

- 24-1  Blowup (DSI)
- 2  Fast Load Cartridge (Epyx)
- 3  Final Cartridge series (H&P Computers)
- 4  JiffyDOS/64 (Creative Micro Designs)
- 5  Mach 5/Mach 128 (Access)
- 6  Partner 64 (Timeworks)
- 7  Quackdas (CDA)
- 8  Quick Brown Box (Brown Boxes)
- 9  RapiDOS (Chip Level Designs)
- 0  Super Snapshot (Software Support Int.)
- x  Warp Speed (Cinemaware)
- y  Other \_\_\_\_\_

#### PROGRAMMING AIDS

- 25-1  Basic 8 (Patech Software)
- 2  Basic 64/128 (Abacus)
- 3  Blitz! 64/128 (Skyles)
- 4  C-128 Assembler Development System (Commodore)
- 5  geoProgrammer (Berkeley Softworks)
- 6  Merlin (Roger Wagner)
- 7  The Better Working Power Assembler (Spinnaker)
- 8  The Better Working Programmer's Tool Box (Spinnaker)
- 9  Other \_\_\_\_\_

#### UTILITY PROGRAMS

- 26-1  Big Blue Reader (S.O.G.W.A.P.)
- 2  Billboard Maker (Solutions Unlimited)
- 3  Graphics Integrator 2 (Inkwell)
- 4  The Graphics Transformer (CDA)
- 5  1581 Utilities (Free Spirit)
- 6  Other \_\_\_\_\_

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Do you subscribe to RUN? 27-1  Yes 2  No

# IT TAKES A LOT TO IMPRESS ME.

**BRIAN DOUGHERTY**  
Software Designer/CEO  
Berkeley Softworks

**A**nd Q-Link, the dynamic telecommunications service for Commodore® owners, does just that! As the developer of GEOS, the graphics environment operating system for Commodore 64s and 128s, I know how good Q-Link is. Personally and professionally. Here at my company, we recommend Q-Link to all our customers. We use it ourselves, too, for online customer service ... so you can get help when you need it. We've also found it's a very efficient way to provide upgrades and patches and to announce new GEOS-compatible products.

With just your Commodore, a modem and Q-Link software, a new world of personal computing options opens up: thousands of programs you can download and keep; advanced graphics (thanks to GEOS); an exclusive help line to experts at Commodore; online educational courses taught by real teachers; fun; games; friendship, you-name-it. Q-Link lets you realize the full potential of Commodore computing—right at your fingertips.

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8619 Westwood Center Drive  
Vienna, VA 22180

Circle 193 on Reader Service card.

# MAIL RUN

Readers write about naval simulations and ask what RUN is up to.

## TRUE TO EIGHT-BITS

What's this I see on your Reader Service card? Quietly hidden away, question J asks how readers feel about replacing some C-64/C-128 coverage in *RUN* with Amiga coverage. A while back you started *AmigaWorld* instead of adding Amiga coverage to *RUN*, but it looks like you're preparing to do an about-face. Are *RUN* readers getting the *RUN*-around? My answer to question J is 6!

—JOHN KUHNE  
NEWMARKET, ONTARIO, CANADA

*Rest assured, John, that we have no plans to change our coverage. For the foreseeable future, the name RUN will remain synonymous with the Commodore eight-bit line. That notwithstanding, if our readers are upgrading to another system, we want to know about it.*

—EDITORS

## WATCHING GEOWATCH

I recently subscribed to *RUN* because of the geoWatch column, so I was disappointed to find it missing from the April issue. Will geoWatch be appearing consistently in the future?

—DAVID A. MCINERNEY  
SILVER CREEK, NY

*We skipped April to establish a new format for geoWatch. Since GEOS is so diverse, we felt we could make the column more valuable to readers by using a variety of authors specializing in different applications. Now you can look forward to an article by a different GEOS expert each month.*

—EDITORS

## BOUNDING OVER THE MAIN

I must disagree with Bob Guerra's relative rating of Up Periscope! and Silent Service in his February review of naval simulations. Both programs are excellent, but the various capabilities and realistic actions of the Silent Service escort vessels make that game by far the greater challenge to the electronic sub captain. The escorts strive, as real ones would, to drive an attacker away or deep long

enough for the convoy to escape, and, like real Japanese destroyers, those here set their depth charges too shallow. In Silent Service, it's also possible to sink a ship with surface gunfire and survive a collision with another ship.

Up Periscope!'s escorts sail calmly on while you pick off their convoy, one by one, and once they find a position in the convoy, there they remain, come torpedoes or high water. If you want to spend a truly frustrating half-hour, try sinking a ship with an Up Periscope! deck gun; it's like throwing spitballs at Hoover Dam. Also, only one torpedo will sink any Up Periscope! ship afloat. Just ask any WWII veteran how often that really happened!

The lack of full information on Silent Service's main screen, far from being unrealistic, contributes to the "fog of war" feeling present in any combat situation. I do agree that Up Periscope!'s graphics of the target ships are better, especially during ship sinkings, but for overall realism, Silent Service wins.

—GARY M. COLLINS  
BONNER SPRINGS, KS

I'd like to mention a program not included in your review of naval simulations—Electronic Arts' new Strike Fleet. This real-life simulation of warfare in the modern Navy includes ten scenarios and a variety of naval vessels.

*Strike Fleet wasn't available for review when Bob Guerra wrote his article. However, we will be reviewing it in the near future.*

—EDITORS

## KEEPING A BRANCH ALIVE

I read your "All in the Family Tree" article on genealogy programs last December and then Peggy Martin Perkins' letter about it in April's Mail RUN. Like her, I was surprised that Personal Ancestral File, a fine program from the Church of Jesus Christ of Latter Day Saints (Mormons), wasn't mentioned. If, as you replied in April, the Church is discontinuing the CPM version of PAF, perhaps

they'd release it into the public domain. Could you publish their address, so I and other interested C-128 users could write and make that suggestion?

—ED DESOTO  
REMBERT, SC

*Sounds like a great idea! Our PAF contact was Lance Jacob, Ancestral File Operations Unit, 50 East North Temple St., Salt Lake City, UT 84150.*

—EDITORS

## ICs, DISKS AND AN APRIL FIRST

I've just seen the April issue of *RUN*, and the monochrome cover is a refreshing change from the day-glo that's so popular lately. As to the articles, I have three specific comments:

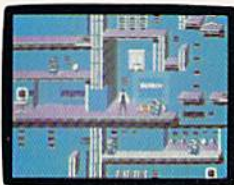
In Troubleshooting Tips, Eric Wendt mentions ICs bearing white splotches in some C-64s as often being bad. The splotches are drops of thermal compound that improve conductivity to heat-sink fingers that reach from the inside of the case to the ICs. If those ICs fail more often than others, part of the cause may be insufficient or improperly placed thermal compound or insufficient pressure from the fingers. Of course, these chips probably have a higher failure rate even when the heat-dissipation scheme is working properly, because of the amount of heat generated.

In Commodore Clinic, in the first question under Hardware, Lou Wallace states that single-sided disks shouldn't be used as double-sided, because the reverse side may be defective. I've never encountered a disk problem that could be attributed to surface failure on the back side of a single-sided disk, even at 96 tracks per inch. If there's validity to Mr. Wallace's statement, it may relate to reversing the direction of rotation of the disk, as when you flip a disk in a single-sided drive. This could disturb the disk liner and dislodge foreign material. Most of my experience has been with double-sided drives, where the direction of rotation doesn't change. ▶

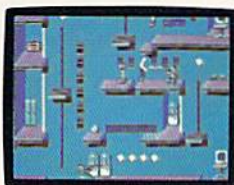


# IF THIS IS THE FUTURE, THEN YOU'RE HISTORY.

Hold it. What's this? Human-seeking suicide robots? An evil mastermind



*There are 8 office towers to search, each with its own theme and level of difficulty.*



*Of course, Elvin's floor plans are almost as complicated as his global plans.*

bent on world annihilation?

No wonder they call this mission impossible. Why, it's got even more strategy and action than the original top-selling Impossible Mission.™

The trick here is to collect the

secret code numbers that will ultimately allow you to access Elvin's stronghold. And waste him before he wastes the world.

There are over 50 rooms to search for codes. Careful. The floors and catwalks in this place end a little abruptly. And of course, they're guarded by those pesky bots. But you've got an MIA9366B pocket

computer to help you crack the security code. A working tape player to play music clues. And a map to show which towers you have or have not searched.

Go then. Elvin is preparing to launch his missile attack in less than ten hours. You must stop him. Or the world will be terminally late for dinner tonight.

## IMPOSSIBLE MISSION II BY EPYX®

*Commodore 64, IBM & compatibles,  
Atari ST, Apple II & compatibles, Amiga*



## MAIL RUN

### RUNNING AROUND THE WORLD

Once again, it's time to publish a list of *RUN* readers who'd like to correspond by mail with other Commodore users. To be mentioned in a future list, send your name, address, type of computer and computing interests—legibly written—to the address at the end of Mail RUN.

#### UNITED STATES

- T. Gerald Smith  
4220 Edinburgh Drive  
Anchorage, AK 99515  
C-64, C-128; games, word processing, utilities
- Art Hirst  
1764 S. Anderson Rd.  
Exeter, CA 93221
- Grant Willey  
Rt. 2, Box 329  
Delmar, DE 19940  
C-128; programming, graphics, GEOS
- Danny Wright  
1320 NW 76th Ave.  
Plantation, FL 33322  
C-128; telecommunications, games, programming
- Jae Kim  
Rt. 1, Box 227-D  
Wildwood, GA 30757  
C-64; games, programming, desktop publishing
- Justin Davis  
1 Maywood Drive  
Danville, IL 61832  
C-64; games, telecommunications
- Carl Fisher  
1616 Ferguson Ave.  
Granite City, IL 62040  
C-64; games, word processing, telecommunications
- Jose Zavala  
1725 N. 43rd  
Stone Park, IL 60165  
C-64; games
- Jim Smith  
Rt. 2, Box 148AA  
Sterling, KS 67579  
C-64; games, programming
- Sherri L. Wood  
6011 Bay Pine Drive  
Louisville, KY 40219  
C-128; programming
- Sandra A. Cahoe  
6012 Bay Pine Drive  
Louisville, KY 40219  
C-128; public domain software
- Aaron Peromsik  
28 Hadwen Rd.  
Worcester, MA 01602  
C-128; games, graphics, desktop publishing, GEOS
- Kevin Kowalski  
42208 Ashbury  
Canton, MI 48187  
C-64; games
- Jim Derry  
21810 Boulder  
East Detroit, MI 48021  
C-128; anything to do with computing
- Uwe E. Habeck  
8725 5th Ave. S.  
Bloomington, MN 55420  
C-64; music
- David Kapsos  
563 Sagamore Ave. #10  
Portsmouth, NH 03801  
C-64, C-128; interfacing, EPROM burning/cartridge-making
- Michele Alexander  
517 Center Place  
Teaneck, NJ 07666  
C-64; games
- Greg Voronin  
440 Carmen Rd.  
Amherst, NY 14226  
C-64; GEOS, programming, interfacing, robotics, games
- Lee Traber  
933 W. Warren St.  
Shelby, NC 28150  
C-64; public domain software, telecommunications
- Richard J. McConnell  
15006 SE Woodland Way  
Milwaukie, OR 97267  
C-128; GEOS, graphics, telecommunications
- Bill Doyle  
PO Box 971  
Copperas Cove, TX 76522  
C-64; telecommunications, including SYSOPing
- Steven Cox  
Rt. 1, Box 361  
Grundy, VA 24614  
C-64; fantasy and role-playing games
- Jay Dziuba  
PO Box 4713  
Richmond, VA 23220  
C-64; telecommunications, utilities, games
- Raymond G. Holmes  
Rt. 1, Box 396  
Roseland, VA 22967  
C-128, 1750 RAM expander; music, graphics, CPM, programming in C and Forth
- Nelson DaSilva  
1431 Mary Ave.  
Cambridge, Ontario  
Canada N3H 4N8  
C-64; games, programming
- Kevin Roberts  
120 Victoria St.  
Salem, Ontario  
Canada N0B 1S0  
64C; programming, games

#### MEXICO

- Pedro Robles Hdez  
C-35  
C.P. 31160  
Chihuahua, Chih.  
Mexico  
C-64; anything to do with C-64s; can correspond in English and Spanish

- Rhett Nieto G.  
or The JOCCSA Group  
Balboa #135,  
Washington y Colon  
Frac. Reforma  
C.P. 91910  
Veracruz, Ver.  
Mexico 35-29-80  
C-128; programming, games, utilities

#### POLAND

- Adam and Tomasz  
Wisniewski  
31-021 Krakow  
Floriaska 22/2  
Poland  
C-64; databases, word processing (in various alphabets), linguistics, CAD

#### CANADA

- Universal Commodore  
Users Group  
c/o Steven Hurdle  
1518 Myrtle St.  
Victoria, British Columbia  
Canada V8R 2Z8  
C-64, C-128; telecommunications, programming, games, word processing, public domain software

With respect to Telecomputing Workshop, I called QuantumLink to inquire about their "no-smoking online policy." It turns out they've received so many cries of anguish, they've set up a Smokers' (tobacco only) area of the network. To access it, you log on normally, but add an S to your password. The Smokers' area contains especially profound

and thought-provoking files that aren't available elsewhere on Q-Link.

—DAVID McLANAHAN  
MARLOW, NH

*Although the files in the Smokers' section may be special, they're difficult to read because of the haze.*

—EDITORS

#### A CALL TO READERS

*This page is your stage, so stand up and say a few words. Extend praise, air grievances or offer hands-on advice and information.*

*Send your letters to Mail RUN, 80 Elm St., Peterborough, NH 03458. Each letter must include the writer's name and complete address. RUN reserves the right to edit letters for style, clarity and space. ■*

# Up Periscope!

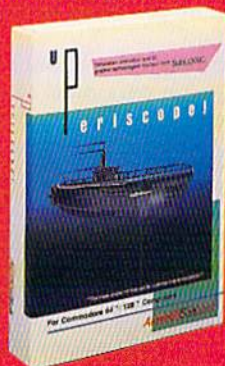
Our first advertising for Up Periscope! boasted of the program's vast superiority over other sub simulators, and detailed the many features that place it generations ahead of the pack.

Now that these facts have become common knowledge, we've asked the man behind the program to go into a bit more detail about how this simulation was created. As Captain John Patten, USN (Ret.) explains:

"I like to think of Up Periscope! as the Flight Simulator of submarine software. In fact, much of the program's 3D graphic routines come directly from Microsoft/SubLOGIC Flight Simulator.

"Whether or not you agree with my terms, you'll have to agree that Up Periscope! has the polish to provide years of unparalleled pleasure. Split-screen views give you the freedom to perform your duties without having to constantly change displays. SubLOGIC 3D graphics provide the realism missing from other submarine simulations. Unlike the U.S. Navy, this sub lets you go on liberty at a moment's notice by saving your mission-in-progress to disk. And I've even included a book about the strategies and tactics I taught in submarine school, with excerpts from actual WWII patrol reports.

"I've used my 24 years of Navy experience to give Up Periscope! the ultimate strategic realism. Experience the sophisticated action and strategy of Up Periscope! for yourself. You'll agree - this is the finest sub simulation available."



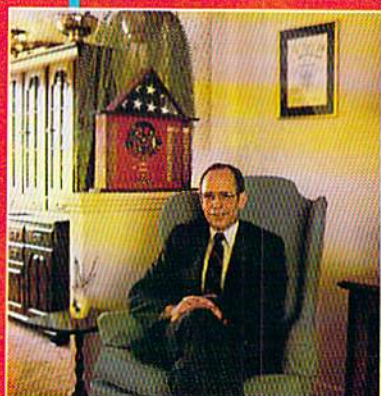
Split-Screen View



Enemy Convoy



Torpedo Data Computer



See Your Dealer...

Circle 26 on Reader Service card.

Or write or call for more information. Up Periscope! is available on disk for the IBM/Tandy/compatibles and Commodore 64/128 computers. For direct orders please indicate which computer version you want. Enclose \$29.95 plus \$2.50 for shipping (outside U.S. \$6.95) and specify UPS or first class mail delivery. Visa, MasterCard, and American Express charges accepted.

**-\$29.95-**  
**Better Engineering at a Better Price**

**ACTIONSoft**

GENERATIONS AHEAD IN STRATEGY ACTION SOFTWARE

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 CHAMPAIGN, IL 61820 (217) 398-8388

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 IBM is a registered trademark of International Business Machines Corp.  
 Tandy is a registered trademark of Tandy Inc.

# SOFTWARE GALLERY

*School is out, just in time for train rides, flying a helicopter and waging naval battles—on your Commodore, of course!*

Compiled by BETH S. JALA

## **INFILTRATOR II** ..... **A**

*Good Guy Versus  
Bad Guy: Who Will  
Be the Winner?*

Infiltrator II is an outstanding sequel to Infiltrator. It features all the elements of a good comic book, from a hero-versus-villain theme to action, excitement, mystery and humor.

This program should appeal to a wide variety of computer gamers. It is a role-playing graphics adventure, flight simulator, arcade and strategy game, all rolled into one.

In true comic book fashion, the computer gamer portrays all-American hero Captain Johnny "Jimbo Baby" McGibbits in his quest to destroy the evil villain, Mad Leader. Failing to do so could mean—what else!—the end of civilization as you know it.

Even though you're one of the world's greatest heroes, it's going to take everything you've got, and then some, to complete your quest. The Mad Leader won't knuckle under until you've completed three missions. Each mission requires you to fly a helicopter into enemy territory, complete a ground mission within the enemy compound, fly back to home base and land safely.

A successful landing in enemy territory gives you the opportunity to embark on one of the three ground missions. Each one involves exploring nine different screens and the many buildings that make up the enemy compound. You must also investigate the maze of rooms in the buildings.

You get five chances to finish a ground mission. If you can't complete a mission before you lose your five lives, you must start over again from home base.

You begin each ground mission equipped with supplies like sleeping gas, fake identification papers and a mine detector. You can add other items found in the enemy compound to your arsenal. In some cases, it's necessary to find specific elements in order to conclude a mission.

Throughout each mission, you'll run into many of the Mad Leader's loyal guards. They patrol both the compound and the rooms within its buildings, so you'll need quick reflexes and wits to make your way around. You may fool one guard with your fake papers but have to gas another to get him off your back. And, your reflexes are also tested as you first try to fight off other aircraft and then keep your own craft from pitching to one side or descending too quickly while landing behind enemy lines or at home base.

The flight simulation and ground mission phases of Infiltrator II are both marked by clear, detailed graphics, smooth animation and accurate response to input from joystick or keyboard. These characteristics make it a pleasure to play the game, despite the very difficult challenge it presents.

Infiltrator II is the type of game you can enjoy for many hours. But before you boot it up, take some time to read the manual. It's almost as enjoyable as the game itself, presenting a humorous, clever and thorough overview of Infiltrator II that will leave you chuckling and well-prepared to defeat the Mad Leader.

Once you start playing, don't get so wrapped up in the game's formidable challenge that you overlook Infiltrator

II's comic relief. For example, after you've failed a ground mission, you might be greeted by the message, "Get a real job!"

It would be a shame to give away too many jokes and punch lines, and it's fruitless to try to convey all of the game's outstanding features in a review of this size. A program as good as this one really must be played to be fully appreciated. (*Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60062. C-64/\$34.95.*)

—SCOTT WASSER  
WILKES-BARRE, PA

## **THE TRAIN: ESCAPE TO NORMANDY** ..... **B+**

*This is Like  
Playing Hogan's Heroes  
On Your Commodore!*

Never before has anyone designed a C-64 program that places you, as an engineer, in the cab of a snorting, vibrating and slightly misbehaving steam train. As a die-hard steam locomotive fan, this is my fantasy by the coal firelight.

The Train entails a lot more involvement on your part than simply donning an engineer's cap and shoveling ▶

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#### **B Good.**

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#### **C Average.**

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#### **D Poor.**

This program has some problems. There are better on the market.

#### **E Failure.**

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## SOFTWARE GALLERY

coal into the boiler. You, in the role of Pierre LeFeu, are assisted by an injured comrade-in-arms named Le Duc. You're both members of the WWII French Resistance movement, whose mission is to capture a trainload of priceless art at midnight and deliver it to Allied forces in France before 8:00 AM.

Don't wait for the conductor to bellow "All abooaarrrd!" when the game starts. Instantly open fire with your fully automatic machine gun (joystick) and mow down the Nazis that appear in the railroad station's windows—you can bet they're going to be shooting at you. At the same time, Le Duc will be running across your line of fire to get into the station. Believe me, it's impossible to get used to accidentally gunning down your only companion with a shower of 50-caliber rounds. But don't worry—he must be wearing the world's best flak jacket, because he's apparently unaffected by your shots.

Once you've wasted a squad or two of Germans, the shooting stops and you must select a skill level. Next, you board the train, and the shoot-'em-up element of the game is put on hold while the simulation/strategy begins.

Your joystick now controls a four-position throttle, brake, forward/reverse lever and steam blow-off. Analog gauges for measuring speed, water temperature and steam pressure adorn the cab's control panel. Naturally, like any engineer worth his weight in axle grease, you also get to blow a whistle; unlike any engineer (where's the fireman?), you also get to shovel coal into the engine's boiler.

As you release the brake and begin chugging forward, everything—the control panel, the scenery out the side windows—begins to shake. Don't leave the throttle open too long, however, or you lose pressure and damage the boiler.

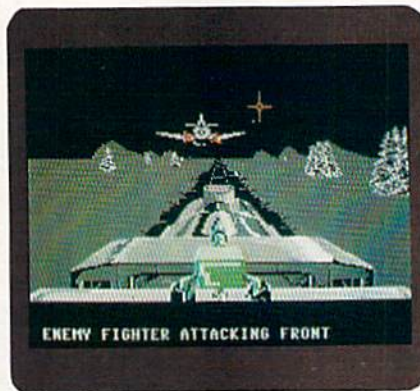
Suddenly, the entire mood changes, and life becomes a confused frenzy of mistakes in judgement. A message appears stating that an enemy airplane is attacking the front of the train. Quick! Read the manual! As the plane's motor roars louder, you see that the manual instructs you to "press 1" for a front view of the train.

So then you've got the view from the front, complete with a forward-mounted machine gun, but where in tarnation is the airplane? Quick! "Press 2" for a rear view! Ah-ha! There's that Nazi warplane, heading out of sight over the horizon. Oh no! A new message says that another plane is attacking! What to do? Quick! Press

1—there's that plane coming in low—just move the sights over to the left a little, line it up and ratta-tat-tat-tat-BOOOM!!

You'll also receive warnings of approaching railroad stations when you get within nine kilometers of them. For a maximum score, stop at every station and pump out some more rounds at the bad guys.

Inside these stations, you'll find German messages describing the condition of the tracks that lie ahead. Heed those messages, or you'll find yourself ditching the train because you, like the prov-



**You'll need quick reflexes to find and fire at the enemy plane that attacks The Train.**

erbial freight train to Georgia, ran out of track.

You can send for repair help or for members of the Resistance to clear the bridges and stations ahead. Speaking of bridges, you need to stop at every one of them, or else the game ends. At uncaptured bridges, you have to sink four ships—with the 155 mm cannon at your disposal—that are lobbing artillery shells at you.

When you repeat the above station-taking, airplane-shooting, ship-shelling, boiler-overheating/underheating and assorted train-wrecking for 20 to 40 minutes non-stop, you've got a fantastic game. However, it's not without some shortcomings. You soon become accustomed to the routine and know where to turn, when to shovel, and how to shoot.

While the graphics are vividly animated and finely detailed, a little more imagination could have done wonders. I'd love to see a stowaway Nazi attack the engineer in route, or maybe have a French damsel in distress tied across the tracks, waiting to be rescued. Variety could've been added to the engineer's duties by letting him perform mechan-

ical repairs (patch the boiler, fix the brakes, etc.) at the station.

Regardless, The Train represents a fine piece of software for your Commodore. Besides, tell me, how else can a train fanatic like myself enjoy a steam engine ride during my lunch break? (Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. C-64/\$29.95.)

—TIM WALSH  
RUN STAFF

### High Seas ..... B+

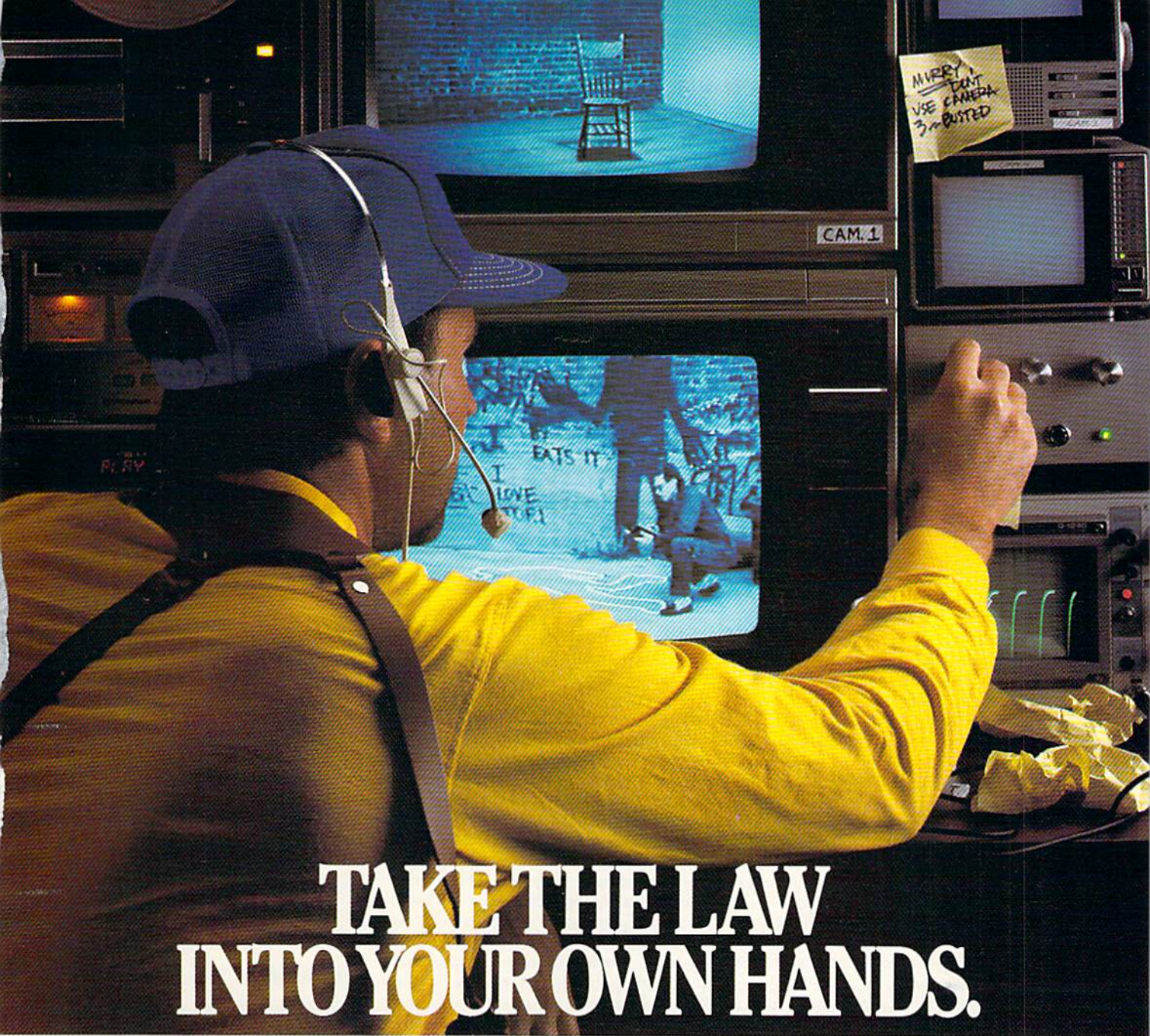
*All Hands on Deck,  
Or, in This Case,  
On Keyboard!*

There is a controlled confusion of men scrambling about the deck. Orders are shouted, cannons loaded, sailors rushing fore and aft. The sharp snapping of canvas and creaking strain of ropes and wood add to the tension. The enemy ships are closing in fast. Now it's a matter of who the better commander is. They have six ships to your four, 236 guns to your 124. The wind isn't with you, but it isn't really with the enemy, either. If your line holds together long enough, you just might have a chance. If not, your ships will be caught in a devastating attack to both port and starboard. Who will be the first to open fire? Should you shoot first and hope to cripple one of the enemy ships, or hold fire until the last moment when it will do the most damage?

These are the kinds of questions you'll have to answer when playing High Seas. As an 18th century commander, this action simulation puts you in charge of six kinds of warships. You can play against the computer or another opponent and control the game via either joystick or keyboard.

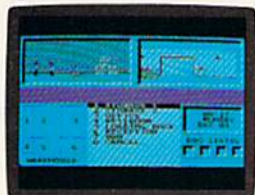
High Seas is not an arcade-style game—it should really be considered a strategy game more than anything else. Open fire too soon, and the enemy will be upon you before you can reload. Open fire too late or when the angle isn't quite right, and the enemy will cripple you before you have a chance to adjust.

The system used in High Seas is well chosen. Sea battles are like dog fights in slow motion: a great deal may be going on but it takes a long time for things to develop. You end up planning, giving orders and checking things before setting it all in motion. You sit back and watch until the com- ▶



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You'll also need to draw on every strategy brain cell available.

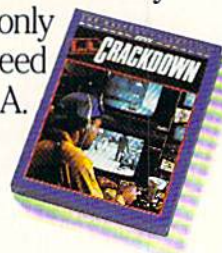
If you're not thinking every minute, you might just spend all evening waiting on a street corner for a suspect who's never coming.

*L.A. Crackdown.* If you think your nervous system can handle the surprise action and tricky mental clues, there's only one thing you need to do. Move to L.A.

## L.A. CRACKDOWN

Commodore 64/128, IBM & compatibles, Apple II & compatibles

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puter stops the action to notify you of different events or when a reaction on your part is needed.

There are dozens of options in both the initial setup of High Seas and during game play. You can design your own scenarios or use one of the 11 that are supplied. You can decide the wind's speed, direction and frequency of change, pick how the sails are set, determine when to fire at which targets and how the guns are to be loaded.

There are status and damage reports and six types of shot you can load into the cannons. All these options, plus the usual save game, load game, and so forth, are selected by using a drop-down menu system.

Overall, High Seas is well designed. It's fairly easy to learn, and there are enough options to give the game some depth. In the two-ship scenarios, the action moves along at a good pace, but when you get into the more complicated seven, eight and even 15-ship scenarios, matters begin to slow to a crawl. It's possible to design a scenario consisting of up to 68 ships, but it would probably be impractical.

One flaw in the game design is that it's easy to lose track of the battle. If a ship takes rudder damage and sails off before repairs are made, it can be difficult getting back to the action, and the map views don't help much. But if you keep track of things carefully and don't try to command entire navies, then High Seas can be very challenging entertainment for a few hours.

It's a good game with good play techniques. The number of options adds realism and depth. And the computer plays a tough game, which makes it that much more enjoyable when you fire that final volley of shots and the enemy strikes his colors. (*Gardé*, 8 Bishop Lane, Madison, CT 06443. C-64/\$49.95.)

—GUY WRIGHT  
AMIGAWORLD STAFF

## KNIGHT ORC ..... B-

*You Poor, Oppressed  
Little Orc!*

You are a pungent little creature, little bigger than an overweight elf. You have the charisma of a blowfly and the appetite of a glutton. You have little or no magic and only rudimentary skills with a knife and a strangling cord. You are unusually ugly, even for an orc. Your name is Grindleguts.

This is not the way you've always pictured yourself, but it's what you're stuck

with in Knight Orc. You start the game by waking up to discover that you've been chosen as champion of all the orcs. To ensure that you don't decline the honor, you've been knocked out and tied to a horse, and are about to face a lance-wielding knight who is headed straight for you!

Fear not! You'll make it through the joust alive, although there may be times when you'll wish you hadn't.

Knight Orc is divided into three parts. In the first section, your main job is staying alive long enough to collect ten pieces of rope that will help you get across a chasm and back home. A couple of the puzzles here are clever, but it's mainly a basic text adventure.

Parts two and three tend to blend into each other, yet this is where the game really becomes a challenge.

Armed with nothing more than a cloak and a visor that makes the whole world take on a new look, you must find and learn 20 magic spells, recruit followers and eventually find an escape from this magic kingdom into the outside world. Along the way, you must keep from being killed by marauding humans, burned to a crisp by a dragon, fleeced by a mercenary troll and foiled by a dozen other pitfalls that threaten to shorten your life expectancy.

One very innovative feature of this game is the interaction with others. You must recruit several characters to help you with various problems. These characters lead completely separate lives, moving about independently as you "do your thing." You can tell a character to go to the castle, kill the magician, steal the gold and bring it to you at the bridge. You go about your business, and in a few moves, that character shows up with the treasure at the bridge! By telling various characters to wait one or two moves before performing an action—attacking, for example—you can have four or five companions simultaneously attack someone with you! That aspect, along with the wonderful graphics, makes the game quite remarkable.

Knight Orc does, however, contain a few minor problems, one of the most irritating of which is the restore feature. To protect their product, Firebird includes a password in the lengthy novel that comes with the game. This password must be typed in every time you use the restore option, which is extremely annoying when you're trying various solutions to a puzzle. I think it's quite unnecessary: one password per session is sufficient to prove that you have the manual. Adding insult to injury is the fact that every time you press

the restore key, the game asks "really restore?" This may not sound like a big deal, but after several hours of it, you find yourself answering aloud with phrases not generally understood by text adventure games!

Another nuisance is that several characters keep repeating the same action throughout the game. For instance, while learning a magic spell from a mouse, you're told that "the mouse is talking quickly; it seems to be trying to tell you something." After you interpret what the mouse is saying, you get the same description every time you're in the vicinity of the mouse—and you spend a lot of time with that little critter! It seems like a bit of sloppy programming in what is otherwise a quality product.

The one thing I really took exception to was a puzzle that seemed to me insolvable unless you happened to be familiar with *The Lord of the Rings*. I found no other clue in the game as to how to solve the problem, and I don't think it should be assumed that everyone who plays this game will be familiar with a particular piece of fantasy.

Other than those problems, the game is highly enjoyable and provides a real feeling of accomplishment when you make your way to the end. It's a worthwhile addition to any adventurer's library. (*Firebird*; distributed by Activision, 2350 Bayshore Parkway, Mountain View, CA 94043. C-64/\$39.95.)

—ART LEWIS KIMBALL  
TUSCOLA, IL

## MAGNETRON ..... B+

*Step into Your Anti-Gravity  
Suit Before You Step  
Into the Future!*

If I had a byte of memory for each time I've heard someone bemoan the death of arcade/action games, I'd have enough storage to make an Amiga 2000 look like a calculator. While it's certainly true that simulations and strategy games have taken up a fair slab of the entertainment purchases in the last 12 months, arcade/action games—just as classy and wrist-aching as their prehistoric counterparts—are once again beginning to appear on the shelves.

Unlike the post-Pac Man era, where half-baked imitations (mostly written in Basic) flooded the market, today's arcade games possess three very important characteristics: stunning graphics and ▶

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## SOFTWARE GALLERY

sound, playability and the inherent ability to bring you back for more action time and time again. Magnetron might not attain the star status of those mentioned above, but it certainly deserves the honored "arm's reach" position at the computer.

Magnetron is a space shoot-'em-up that stands out for several interesting reasons, the least of which is the game's splendid graphics and fluid play. At the heart of what makes this program shine is its brilliant simulation of gravity and magnetic forces at work. You see, Magnetron takes place far into the future, where you, the last starship, must save Earth from 50 alien fortresses. Sounds familiar, you say? While zipping about in zero-gravity is tough enough for the aspiring space cadet, you must also contend with the unpredictable effects of the tremendous magnetic fields generated by these fortresses.

These fortresses are really armed satellites. To destroy them, you must pilot a small fighter into the heart of the stronghold and knock out the enemy

defenses. But take heed, the magnetic forces within the space citadels make this task a very difficult chore. While one moment you're drifting one way, a sudden shift of gravity can launch you in the opposite direction, and probably into a wall or some other foreign object likely to cause death.

Remember some of the earlier space games, where you tried to navigate down a narrow alley without destroying yourself in the process? Imagine trying to do so with huge magnets attempting to pull your ship asunder at every turn!

Each fortress represents a level of play. As you jet about, blasting and dodging, unpredictability knocks at every corner. Even the walls of the fortress can have you guessing, for even though a fighter can bounce off or pass directly through some walls, a sudden impact on others instantly generates an aluminum dustcloud from your little photon fighter.

Learning how to move about in this superb three-dimensional environment can be tedious at first. Each fortress is

viewed from an overhead perspective, and your photon fighter can be controlled from either joystick or keyboard input. It's extremely tough to control the fighter until you become very familiar with the joystick operation; this might take several smash-and-trash outings!

The difficulty in navigating about the fortresses might prove frustrating to some players. Younger gamers could even have trouble getting in and out of the first fortress alive. Don't give up; Magnetron includes a fortress editor. With just a little effort, you can easily create devastating death traps or weak, toddler-level space camps that can be saved to a separate disk and used in lieu of the standard game fortresses.

Overall, I was pleased with Magnetron. With its colorful graphics, smooth play, high-score menu and multiple skill levels, I felt as though I had stumbled upon an old friend. (Broderbund Software, Inc., 17 Paul Drive, San Rafael, CA 94903. C-64/\$24.95.)

—JOHN RYAN  
BILOXI, MS ■



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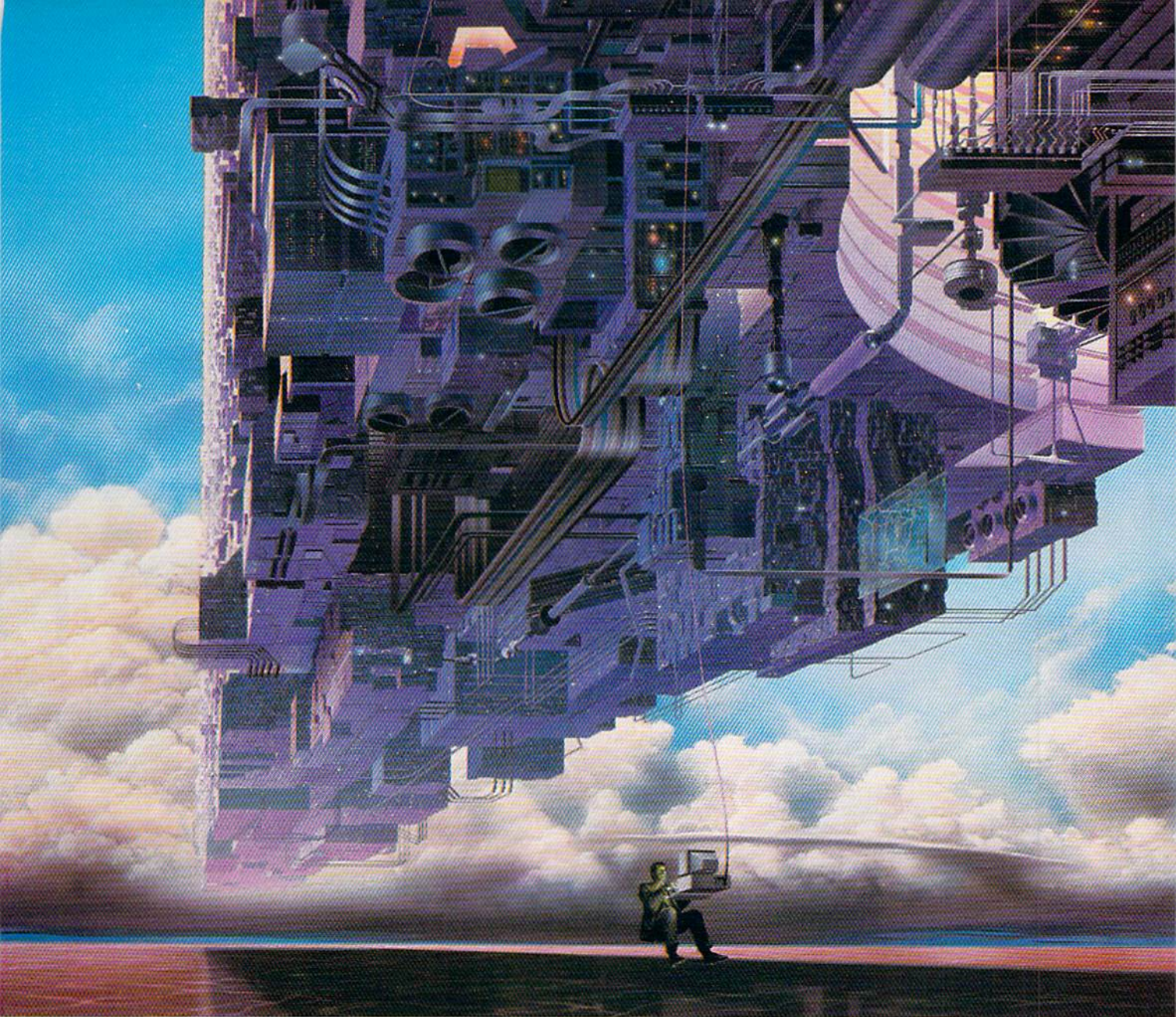
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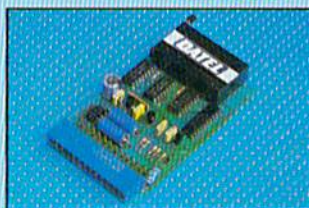


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LAS VEGAS  
NV 89121



found will be the orthographic  
the corners; and if these points be  
by corresponding lines, there will  
of the brick under three views or pro-  
on the drawing of the box, a rectangle  
be, being the plan of the brick, on the

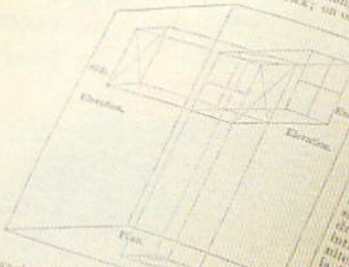


FIG. 1.

rectangle 8 by 21 in. the side elevation; on  
the other side a rectangle 4 by 22 in. the end  
elevation. If the brick be inclined to either  
or all of the sides of the box, the projected  
outlines will be varied; but the same rule for  
determining the position of points obtain-  
ing, viz: by letting fall perpendiculars on the  
planes to which they are referred, on the  
is the shadow it would cast on a plane perpen-  
dicular to the rays of the sun, if held between  
it and the sun. Simple objects in outline  
but often, to illustrate the construction of  
interior sections in general may  
appearances that might be presented were the  
objects cut by planes; all portions that would  
be thus absolutely cut are designated by filling  
up the outline with a quantity of inclined par-  
allel straight lines, at equal intervals from each  
other, should there be distinct parts in each  
in contact with each other, to prevent confu-  
sion the different sections are expressed by  
lines inclined in opposite directions. In most  
architectural and mechanical constructions it  
would be obviously impossible that they could  
be drawn full size. Scales are therefore made  
use of, in which fractional constructions are  
used. The scale in most common use is  
architectural drawings is that of one fourth of  
an inch to the foot, or  $\frac{1}{4}$  of the linear dimen-  
sions; in mechanical drawings, one fourth or  
one eighth full size, that is, as usually under-  
stood, one fourth or one eighth of the linear  
dimensions. Working drawings of machines,  
body are made by means of  
projections from these scales  
forming a set of eight parts  
these rules to an intermediate  
is the perspective projection  
The rules for the projection of

FIG. 2.



# T H E L A T E S T W O R D

*Several new contenders have stepped into the word-processing fray. Which one will win your allegiance?*

WORD PROCESSORS HAVE BATTLED for years to be king of the market mountain, and the sparring continues unabated in 1988. In this article, I survey five word processors for Commodore computers that have been released in recent months. As usual, each offers a variety of features, and they sell at a range of prices.

In Table 1, you'll find a summary of the features of these programs. Refer to Table 2 for a list of distributors and prices.

## PAPERCLIP III

PaperClip III must be ranked as one of the finest word processors currently available for the C-64 or C-128. It supports most of the latest hardware for the 128, includes most of the features you'd expect to find in the best word processors and offers a few new ones as well.

First, a standing ovation for Electronic Arts, the new parent company for PaperClip's developer, Batteries Included, for removing all copy protection from the new version. Not only does this eliminate head banging on a 1541 disk drive and enable you to make backup copies, it also makes the program easily transferred to a 3½-inch disk for use with a 1581 drive.

I hope other companies will follow the lead set by EA. I also hope that users won't abuse the trust implied by this action. If PaperClip III begins to show up on bulletin board systems, it won't be long before industrial-strength copy protection will be back.

When you purchase PaperClip III, you'll find two disks in the box, one for the C-64 and one

for the C-128. Each disk contains the word processor on one side and a dictionary on the other. The versions are similar, the major differences being that the C-128 program offers an 80-column video display and supports the Commodore RAM expansion unit. (Note: The instructions aren't clear as to whether it supports only the 1750 RAM expander or both the 1750 and 1700.)

Electronic Arts has made the best use I've seen yet of the RAM expander in conjunction with a spelling checker. After the first check of a document, the contents of the dictionary are stored in memory. Then you just toggle the dictionary for further checks. You can even have the program prohibit more typing until the misspelled word is corrected.

The spelling checker includes a feature referred to in the instructions as an auto-expander, which allows two or more letters to act as triggers for longer phrases—VTY for "very truly yours," for example. These extenders are stored in a file and placed in memory whenever the program is loaded.

Unique to PaperClip III is its built-in telecommunications program, also loaded into memory so you can toggle between it and the word processor. You can write text with the word processor, format it and then transmit it to another computer or a BBS via this telecommunications option. The terminal program is also capable of uploading and downloading files via the X-Modem, X-Modem CRC and Punter protocols, and it includes a phone book that can store the phone numbers and terminal configurations for up to ten bulletin boards. ▶

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By MICHAEL CAVANAUGH

**T**he strength of FontMaster 128 lies in the way it handles graphics, not text.



PaperClip III has a few minuses. Column movement is somewhat limited, being designed more for manipulating tables and numbers than text, but this isn't a big problem unless you intend to work in a two-column, newspaper format. Then, the dictionary is rather small—40,000 words—for a professional word processor, but it's capable of virtually unlimited expansion. The most glaring problem is the lack of a thesaurus, a feature that has become almost standard in top-end programs.

While there's a very good mail-merge feature built into PaperClip III, this program is not part of an integrated productivity system. Electronic Arts does offer a database, The Consultant, but there's no mention of it in the PaperClip III instructions, so I assume they're not compatible.

PaperClip III is a post-formatted word processor, with the format commands embedded in the text. As a result, you must go to the video output feature to see how the text will look on paper. The video output shows italics, underlining, and super- and subscripts on the screen, and all the text enhancements, including boldface and combinations such as bold italics, are highlighted in user-defined colors. Line spacing is also displayed, something most of the what-you-see-is-what-you-get word processors don't offer.

### FONTMASTER 128

Xetec's FontMaster 128, a surprisingly easy-to-use program, is part word processor and part desktop publisher. It lets you develop two set-up modules, each with a separate printer/interface configuration, and then switch between them from within the main program. It also supports over 100 printers and 20 interfaces, and, in case your hardware isn't among these, lets you customize the printer modules. There's even a test program you can run from within a setup file to make sure your printer/interface selection is working properly.

FontMaster 128's major commands are displayed in menus in the upper portion of the screen. While you'll need the manual to get started, I think you'll find after a few sessions that the on-screen menus are enough to get you through most writing chores.

Like PaperClip III, FontMaster 128 is not copy-protected. It does, however, require the use of a dongle to save or print a file. The dongle is unobtrusive, attaching to the cassette port on the back of the computer, and the power cord for a printer interface is piggy-backed to it.

Since there's no copy protection, FontMaster 128 can be transferred to a 3 1/4-inch disk with a simple file copier. When you are using the 1581 drive, the load time for this program drops from 33 to 20 seconds.

A new 100,000-word dictionary called SpellMaster 128, which works with FontMaster 128 and can be loaded into a 1700 or 1750 RAM expander, is available by mail from Xetec. The dictionary includes alternative spellings, and you can look up words using \* and ? as wild cards. SpellMaster 128 must be used with a compatible version of FontMaster 128, so Xetec sends the correct version of the word processor with the

dictionary. No, you're not entitled to get another dongle!

The two biggest weaknesses of FontMaster 128 are its inability to chain files, thus limiting you to a maximum file size of about 64K, and the lack of on-screen formatting. There is a Video Preview mode that shows characters in their graphic form, but it displays only 53 columns across until you scroll it horizontally to reveal more columns. It's also impossible to scroll backward.

Like PaperClip III, FontMaster 128 includes a mail-merge feature, but is not compatible with a database or spreadsheet. It also has no thesaurus.

The strength of FontMaster 128 lies in the way it handles graphics, not text. It comes with over 45 easy-to-load and easy-to-use fonts, including Hebrew, Russian, Greek and Arabic. In addition, hi-res graphics, including those created with Print Shop, can be imported, edited and inserted into the text. You can also direct your printer to print in Dot Matrix mode, so you aren't forced to sit through the slow Bit-Mapped Graphics mode if no special characters are required.

FontMaster 128 isn't the word processor to use for writing the Great American Novel. However, if your normal documents are of small to medium size (less than 30 pages) and you enjoy using a variety of fonts and characters, this program is for you. More than useful, it's fun, and any time you combine those two elements, you have a real bargain!

### WORDPRO

Spinnaker's WordPro with Turbo Load and Save, a word processor for the C-64, was a big disappointment to me. While the program has no glaring faults, neither has it any innovations. It appears, with the exception of a very large dictionary, to be a throwback to the word processors on the market about two years ago.

Like the other programs mentioned here, WordPro has no copy protection. It does, however, require the use of the Turbo Load and Save cartridge for loading the program. Unlike the FontMaster dongle, I found this little device very obtrusive, because it prohibits use of two of the more popular options for the C-64: Partner 64 and the 1764 RAM expander. Of course, cartridges can be switched, but I've always worried about excessive wear to the cartridge port.

The program is also needlessly quirky and difficult. For example, to change the default printer file, you must rename files in the directory, and to change screen colors or drive numbers, it's necessary to load and edit the Install program, and the manual warns that both procedures are not for the inexperienced. Instead of trying to frighten users, why not just recommend that they copy the program and edit the copy? More to the point, why should specifying a printer and new screen colors be so complicated and dangerous?

WordPro does load quickly with the Turbo Load and Save cartridge in place—less than 20 seconds with a 1541 drive. The cartridge also acts as a fast loader with most other software, and it enhances Basic 2.0 with a Spinnaker version of the DOS Wedge.

The label on the cartridge states that it can be used with both the C-64 and C-128, but there's no selector switch, so a 128 defaults to 64 mode when it's turned on with the cartridge in place. The cartridge also places a 1571 in 1541 mode, and it doesn't recognize the 1581 drive.

I did find a few interesting features in WordPro, among them the alternate pages and double-sided output commands. With the Double-Side command, you can print all the even pages of a document, then remove the paper and reinsert it in reverse to print the odd pages on the blank sides. The Alternate Pages command ensures that when double-sided printing takes place, items such as page numbers are located in the same place on both the fronts and backs of sheets.

WordPro comes with a 100,000-word dictionary—one of the largest available for the C-64. Alternative spellings, however, are not included among its listings. The spelling checker is on a separate disk, but it can be loaded directly from the word processor, and text can be edited from within the Spelling Check mode.

WordPro interfaces with Spinnaker's FilePro 64 database, although no mention of this is made in the instructions. Rather, it's noted in a little promo on the back of the box.

WordPro isn't a bad word processor; it's just that

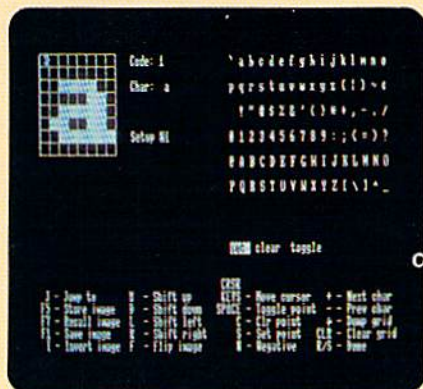
there are so many better ones now available. This is a product whose time has come—and gone.

## GEOWRITE WORKSHOP 128

GeoWrite Workshop is an 80-column what-you-see-is-what-you-get word processing package to be used with GEOS 128. The centerpiece of the package is geoWrite 2.1, an upgrade of the word processor that comes with GEOS 128. With this upgrade, you can format paragraphs individually; justify text; get single-, double- and one-and-a-half line-spacing of text; print super- and subscripts; incorporate headers and footers; and perform search-and-replace operations.

Along with geoWrite 2.1, the Workshop disk includes a number of utilities that expand the power and versatility of the word processor. GeoMerge inserts outside data into form letters, and geoLaser enables you to print documents on the Apple LaserWriter, which produces almost typeset quality. The Paint Drivers generate overlays you can merge with any document produced by geoPaint or geoWrite.

Numeric data can be merged into Workshop documents from geoDex, geoFile and geoCalc, and the program's Text Grabber imports text from Fleet System 4, WordWriter 128 and Paper-Clip II. You can also import documents created



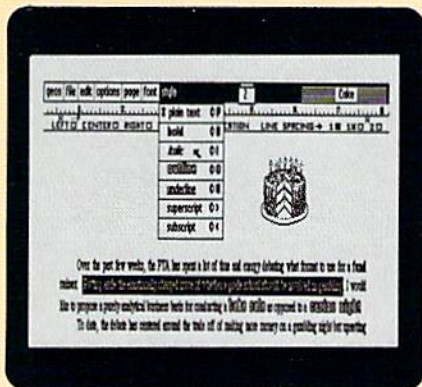
Creating a variety of fonts is one of FontMaster 128's enjoyable features.



Demonstration text supplied on The Write Stuff's disk.



A look at PaperClip III's main menu hints at the many features included in the program.



Want to emphasize a word or a line in your geoWrite document? Try italicizing it!



The Write Stuff may not be fancy, but neither is it stripped down.



with other word processors by using Text Grabber's Generic Form file, but such text is stripped of all formatting commands. Linked files cannot be imported as individual units.

The Workshop provides three printing modes. High Quality prints text exactly as it appears on the screen, including fonts and print styles. Near Letter Quality produces the format on the screen, but works only with the Commodore 10-point font. Draft mode is only for rough drafts.

While there's no spelling checker built into geoWrite Workshop, a separate Berkeley program, geoSpell, will do the job. Working in 40-Column mode, it checks spelling in any geoWrite document, including those created with other word processors. The dictionary is small, at 28,000 words, but it does provide alternative spellings, and you can expand it by creating your own dictionaries.

With geoSpell, there's a font editor, called geoFont, that lets you change both the size and shape of existing fonts, as well as create new ones. The directions are clear, and the editor is easy to use.

You can't run geoSpell from within the Workshop, but must save your documents first and then spell-check them. Another drawback to geoSpell is its very slow speed. It took me over ten minutes to check a five-page document! The Workshop can generate documents up to 62 pages long, and I shudder to think how long it would take to spell-check something of that size.

Both geoWrite and geoSpell must be installed before use, a process I had problems with. Thankfully, Berkeley's Rob Siegel came to my rescue. He explained that early versions of geoWrite Workshop and GEOS 64 applications used with GEOS 128 require the disk drives to be in 1541

Table 1. Product features.

	PaperClip III	PaperClip III	WordPro	The Write Stuff	geoWrite Workshop	FontMaster 128
Computer	C-64	C-128	C-64	C-64	C-128	C-128
Copy-Protected	N	N	N <sup>1</sup>	N	N	N <sup>1</sup>
Dictionary	Y	Y	Y	N <sup>2</sup>	N <sup>2</sup>	Y
Thesaurus	N	N	N	N	N	N
On-Screen Formatting	N	N	N	N	Y	N
Approx. Text Size in 56-Line Single-Spaced Pages	2.5	7.5	4.5	10	62	30
Links Files	Y	Y	Y	Y	N	N
80-Column Video Preview	N	Y	Y	N	NA	Y <sup>3</sup>
Spelling Check Time <sup>4</sup>	3.5 min. <sup>5</sup>	18 sec. <sup>6</sup>	1.75 min. <sup>6</sup>	--	11 min. <sup>6</sup>	49 sec. <sup>6</sup>
Integrated with Database/Spreadsheet	N	N	Y	N	Y	N
Supports Multiple Drives	Y	Y	Y	Y	Y	Y
Supports 1581 Drive	Y	Y	N	N	Y	Y
Supports RAM Expanders	N	Y	N	Y	Y	Y

1—Uses dongle.

2—Dictionary function available in separate program.

3—Video preview is 12 lines by 53 columns, but text can be scrolled horizontally.

4—Spelling-check times for PaperClip III and FontMaster 128 represent time required after dictionary was loaded into RAM.

5—Length of document checked, approximately 700 words.

6—Length of document checked, approximately 2700 words.

mode during installation. This problem has been eliminated in later versions, but there still may be some programs on store shelves with this impediment.

At its heart, geoWrite Workshop is a graphics text editor. While this latest version of geoWrite does offer basic word processor features, they're slow and clumsy. However, for printing graphics or text using a variety of fonts, styles and sizes, the Workshop is hard to beat. I'd suggest using a word processor such as PaperClip III to create your documents, then geoWrite Workshop to enhance them. In that way, you can have your cake and eat it too!

## THE WRITE STUFF

The Write Stuff, originally sold through user's groups and now available from Busy Bee Software, is one of the most innovative, interesting and inexpensive programs I've ever seen. This C-64 word processor supports dual drives and RAM expanders, does two-column printing and, if that isn't enough, even talks!

The distribution of the program is unique, too. You can buy a single copy from the company or act as a distributor, thereby receiving substantial discounts through purchasing in quantity. A single copy (including the speech synthesizer, a keyboard overlay, a 12-page instruction booklet and a reference manual) costs \$24.95. The same package in amounts of 50 or more costs only \$11.25, and, if the bulk order doesn't include reference manuals and keyboard overlays, the price drops to \$8. Busy Bee states that their policy is to develop worthwhile, low-cost software as a deterrent to piracy. It looks like they have.

The Write Stuff may not be fancy, but neither is it stripped down. Among other features, it lets you save documents as sequential or program files, set up macros (two letters to replace a word or words), switch between a Dvorak and Qwerty keyboard, encrypt text (so it can be loaded and read only by those who know the password) and store two documents in memory at the same time. RAM expansion units are supported, although you'll need the public domain RAMDOS program (specifically, RAMDOS111286.BIN and FILECOPY.BIN) to use them.

Some 57 pages of help files are available from within The Write Stuff, and should you care to make hard copies, you can refer to the index in the instruction booklet to locate the ones you want. There are also text samples and tutorials on the disk.

The flip side of the disk contains BB Talker, the heart of which is S.A.M., the Software Automatic Mouth. BB Talker comes with a number of familiar songs and nursery rhymes to be loaded, read and heard, and instructions explain how you can write your own with ease. Kids love BB Talker, and it's a great way to teach preschoolers the alphabet. Its nine voices sound mechanical, but are generally understandable.

There's no dictionary with The Write Stuff. However, when its text files are saved in the ASCII sequential file format, they can be checked by a number of other spelling checkers, including RUN Script's.

The Write Stuff does include a mail-merge function, and, for those who need more powerful searches, it can be interfaced with Superbase. Instructions for using the two programs together appear in the reference manual.

Busy Bee is currently working on a C-128 version of the program, which should be available this summer. They're also planning updated versions for both the C-64 and C-128. The updates will include a thesaurus, along with both spelling and usage checkers. The Write Stuff is already impressive, and version 2 is sure to give the "big boys" a real run for their money. ■

*Michael Cavanaugh, a field supervisor for the Pennsylvania Bureau of Standard Weights and Measures, enjoys photography, canoeing and bicycling when not absorbed in using his extensive Commodore system.*

Table 2. Distributors and prices.

### PaperClip III

Electronic Arts  
1820 Gateway Drive  
San Mateo, CA 94404  
C-64, C-128  
\$49.95

### FontMaster 128

Xetec, Inc.  
2804 Arnold Rd.  
Salina, KS 67401  
C-128  
\$69.95

### SpellMaster 128

C-128  
\$10.00

### WordPro with Turbo Load and Save

Spinnaker Software  
One Kendall Square  
Cambridge, MA 02319  
C-64  
\$39.95

### geoWrite Workshop 128

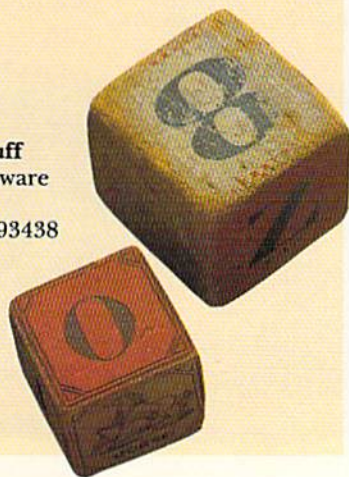
Berkeley Softworks  
2150 Shattuck Ave.  
Berkeley, CA 94704  
C-128  
\$69.95

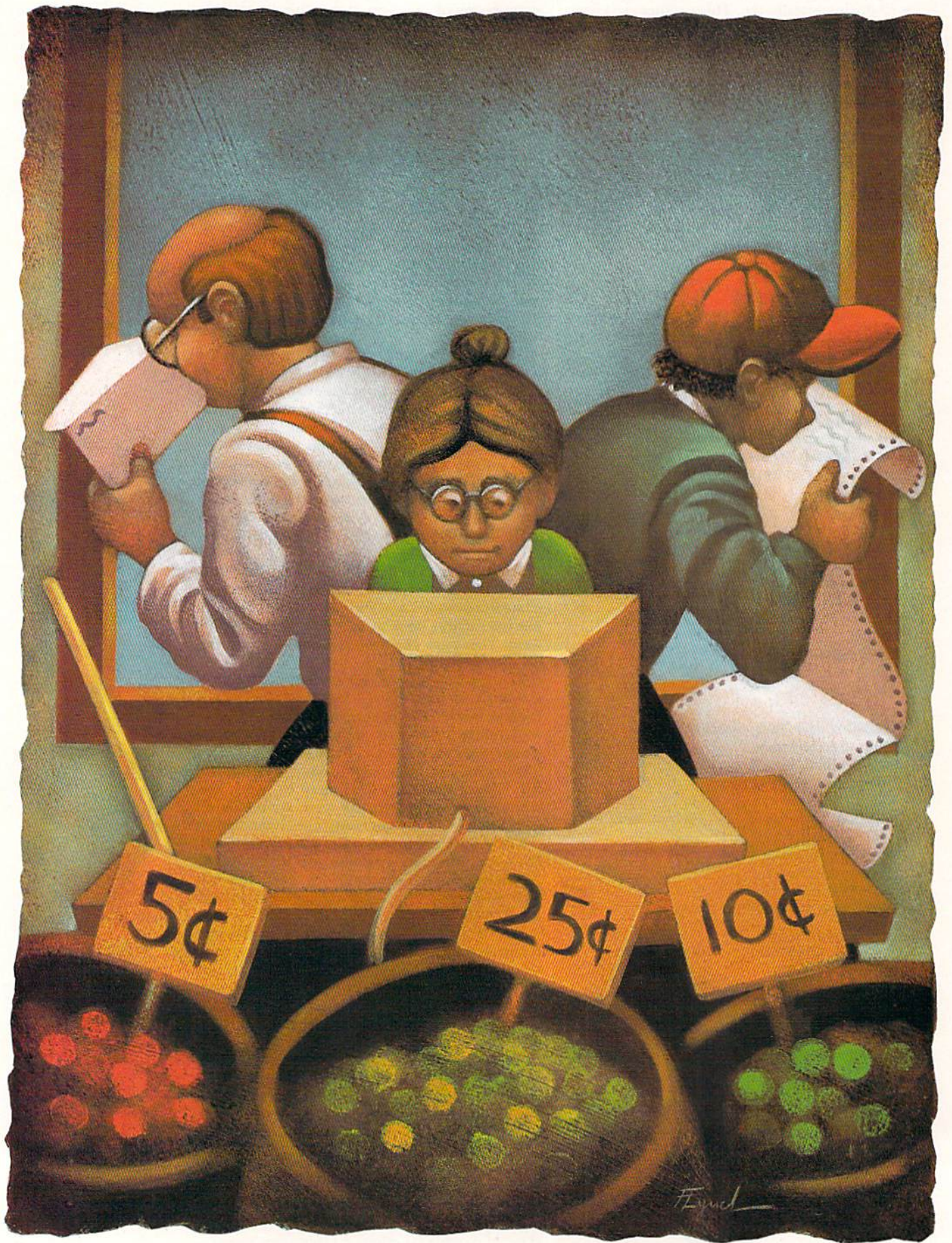
### geoSpell

C-64  
\$29.95

### The Write Stuff

Busy Bee Software  
PO Box 2959  
Lompoc, CA 93438  
C-64  
\$24.95







# Form Writer

*Design and print out personalized forms for all your  
small-business and family needs.*

By TOM BROWN



If your family, small business or club runs on a limited budget, you can save money by using Form Writer on the C-64 or 128 (in 40-Column mode) to create single-page forms for many purposes—letters, invoices, questionnaires, membership records, and so on. The program allows you to print custom-designed forms, containing fields that you can fill in by using the keyboard or the program's document-oriented database.

Each form contains 50 lines, each with 80 characters, and you can prefix any line with one of nine print codes, allowing condensed, italic or double-sized type. Because these codes are defined in the Basic portion of the program, you can easily customize them to suit your needs. There's even provision to send up to ten nonprintable characters to the printer, so you can send special printer codes within lines.

## FIRST STEPS

C-64 users must type in Listing 1, using *RUN's* Checksum, but must not type in any lines shaded in red, which are for the C-128 version only. C-128 users must type in Listing 1 in its entirety. After saving Listing 1 to disk, C-64 users must type in Listing 2, save it to the disk that contains Listing 1, and then run it, while C-128 users must type in, save and run Listing 3. Both Listing 2 and Listing 3 write machine language Editor files to disk that are subsequently read in by Form Writer for use when you are working with the program.

Once you've typed in the listings, be sure to run the C-128 version in 40-Column mode. When the program is activated, it first prompts you to enter the month and day, to be used when

there's a date field in your document. Next, the program checks the disk drive, so all future disk operations default to that drive. You can easily change the drive by using the Disk Drive option on the main menu.

## CREATING AND EDITING BLANK FORMS

After the preliminaries, you're ready to create a blank form. On this form, you'll place the text, which won't change from document to document, and the form fields, which will.

At the main menu, select option 1, the Form Editor. It will take you to the Form/Field menu, where you should select option 1 again, to create a new form. This selection erases any old form in memory. If, instead of creating a new form, you want to edit the one currently in memory, choose option 2 at the Form/Field menu.

The editor functions within a 40-column window on an 80-column by 50-line page. Using the cursor keys, you can move this window to cover any area on the page.

Whenever you enter the editor, you'll find the blinking cursor in the first column on the first line. At the bottom of the screen there's a status line that shows the position of the cursor in the 80-column form (not in the 40-column window). Both lines and columns are numbered starting at zero. As you type characters or use the cursor keys, the status line updates automatically. You'll find this handy for keeping tabs on the cursor's location when it's traveling a distance on the page and seems to vanish. Forms can scroll horizontally in the window as far as the 80th column (column number 79), which rep-

resents the edge of the paper.

As you're working, press the return key to advance the cursor to the beginning of the next line. To move the cursor right several spaces, press the tab key on the C-128 or control/I on the C-64. The insert and delete keys operate in the normal fashion, but affect the entire 80-column line, not just the 40 columns in the window. *Don't* use the insert key when the cursor is in the first column of any line. Also, the home key sends the cursor to the top of the form, not the top of the window.

To erase the screen on the C-128, press the alt key along with clear-screen (shift/home). On the C-64, clear-screen doesn't work at all; you must go back to the Form/Field menu and select option 1 (create a new form).

To exit the editor, use the escape key on the C-128 or the F1 key on the C-64.

## CREATING FIELDS

To create a field anywhere on your form, define its start and end positions by pressing the up-arrow key where the first and last characters will be. Unpaired up-arrows are ignored. The program allows a maximum of 256 fields on a page, but memory limitations will undoubtedly lower that number, particularly with the C-64.

Use the left-arrow character to direct Form Writer to follow one of the special printer code sequences in line 6 of the listing. The program defaults to printing "hello" when it encounters this character, but, if you change line 6, it will print whatever you wish, within limits. The printer code cannot include more than ten characters, nor can it contain any zeroes. A CHR\$(0) is required at the end. The CHR\$(0) is not ▶

• • •  
RUN it right: C-64; C-128 (40-Column mode)

## FORM WRITER

sent to the printer, but is used by Form Writer to locate the end of the printer code.

Only one code sequence can be used at a time in a document, but it can appear as many times as you wish. Don't confuse these codes with the commands for changing printer fonts that go at the beginning of lines (see Printing, below).

When you exit the editor, it asks if you want to define the fields you've just created. If you're not satisfied with them yet, select option 2 in the Form/Field menu to edit the form currently in memory. Skip that option's erase-form step and go directly to the editor to make your changes. When you exit option 2, you can define the fields you passed over before.

If you opt to leave the editor without creating any fields, you go directly back to the Form/Field menu.

### DEFINING FIELDS

Once you have entered your fields into the form, the program proceeds through them from top to bottom and left to right on the page, displaying the number of each field (starting at zero), its line and column position and its length, and you must give each field a name. For those fields you'll be filling yourself, as opposed to those the computer will fill, this name should be meaningful, such as Last Name or Address.

After you've named the field, you must specify the type of data it will hold, using the following list of ten possibilities:

**Alphanumeric:** Any printable character, including numbers, but the field cannot be used for calculations.

**Sum1, Sum2 and Sum3:** Numeric values, which will be added into three subtotals.

**Total1, Total2 and Total3:** Numeric values—these fields hold the subtotals of the three Sum fields listed above.

**Grand Total:** Numeric value—the total of the Total fields above. If you wish to subtract any Total field from the others in reaching the Grand Total, enter negative values in the appropriate Sum fields.

**Keyboard:** Data typed in by the user at the time of printing.

**Date:** The date you type in when you run Form Writer.

Data to fill Alphanumeric, Sum and Keyboard fields is entered by the user. Data for all the other types of fields is entered automatically by the computer when you print your document.

Be aware that you can't use the editor to preview a filled-out document before printing. Prior to printing, the blank form is copied to another area of mem-

ory (with the original left intact) where its fields are filled. The editor cannot view that area.

Should you want to abort defining fields—if, for example, you gave the last field the wrong name or type—press return at any field-name prompt to exit to the Form/Field menu.

### CREATING THE DATABASE

After you've defined all your fields, Form Writer presents the name of each one and asks in what order you want the program to prompt you to fill them in, because it's seldom convenient to do so in the same order the program numbers them. For example, the form may have a person's last name listed before his or her first name, but the reverse order would be easier to key in. There's no error-checking here. If you enter the same priority for two or more fields, only the lowest-numbered field with that priority will be used; the database will skip over the others. Be careful to designate each priority only once, and you'll have no difficulty.

When this step is done, enter a name for your database. The name can be no longer than 15 characters, because the program prefixes it with a slash mark. The slash mark distinguishes database files from document files. Don't enter this slash mark yourself when reading the database back; the program will do it for you.

### SAVING AND LOADING THE FORM

Don't forget to save your form after you've edited it! Also, note that you can use a form with several different databases, but you must be sure to have the correct form loaded into memory before defining fields or printing a document. Saving and loading are done from the Form/Field menu.

### USING THE DATABASE

Once you've designed your blank form, defined its fields and saved your database to disk, you're ready to use the Database option in the Main menu to view, add, change or delete the user-entered Alphanumeric or Sum fields. If you don't have a database open at this point, the program forces you to open one in order to reach the Database menu. From that menu, you can easily change databases with the Open Database option. The name of the currently open database is listed on the Database menu screen.

To Form Writer, the database is an outline, or template, of the length and type of each field in your blank form. Each record in the database is referred

to as a document. Rather than use relative files, which would be slow and awkward in this application, each document is stored in a sequential file. These files are very small and easily copied (using appropriate software) to backup disks or transmitted via modem. They also give you the advantage of naming each document, rather than dealing with it as a record number.

Deleting a document involves nothing more than scratching its sequential file. The program pauses and tells you to hit "any key to continue," after listing the Files Scratched message. The Edit Document option displays the same message, since it deletes the old document before saving the new one.

### DISK DRIVE HELP

It's virtually impossible to remember the filenames for a whole collection of databases, documents and forms, so you need to have access to your disk directory as you're using Form Writer. When you're in the middle of working on something, you can view the directory by entering a dollar sign as the filename at many filename prompts. Then, after you're done, the program returns you to the same prompt.

At those times when you're free to go to the Main menu, you can view the directory through the Disk Drive option, which provides access to the disk drive error channel, as well. Drive commands are standard DOS Wedge commands, only you can omit the @ at the beginning. Entering a number higher than 7 instead of a disk command changes the default drive setting. Since the program defaults to the drive it was loaded from, you can use this option to change to another drive (or even the RAM DOS!) for your data storage.

### PRINTING

When it comes time to print out your form, choose the Printer option in the Main menu. If you haven't opened a database and loaded a form at this point, the program will ask you to do so. There are also menu options to change the database and form.

You can print a form using a document from your database, or you can enter the information from the keyboard (but only information that would normally be stored in the database). There's another option for printing out a form with the fields left blank, so you can fill them in by hand. In this case, the fields are printed with dotted lines. Remember to leave enough vertical spacing in the blank form to give your penmanship room to breathe. ▶

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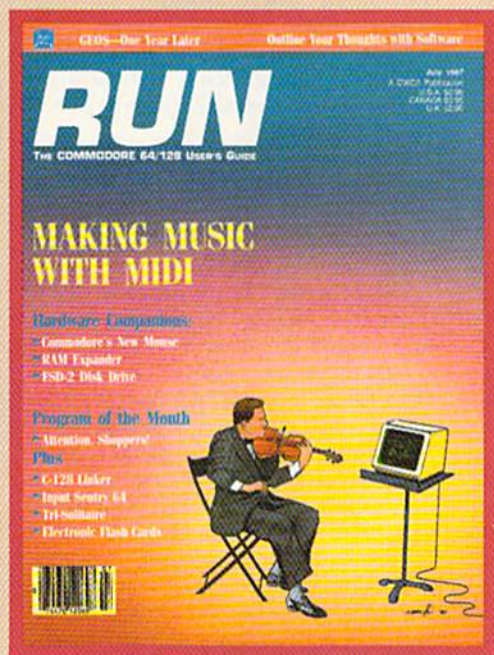
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# FORM WRITER

Before you print out your form, there's one last thing you might want to do: Call on some of your printer's special effects to create a more professional look. You can use Commodore graphics characters (if your printer or interface permits it), but perhaps you'd like to use italic, double-width or condensed characters. Select the Set Printer option from the Printer menu, then enter your printer codes. This is also where you can change the printer device numbers and secondary addresses.

Note that two printer files are opened for printing, one of which has a default secondary address of 7 for printing lowercase letters. This is the channel that each line of the form is sent through. The other channel is opened to secondary address 5, which, on most printer interfaces (such as the Cardco and Xetec), lets you send printer command codes without fear that the interface will think they're regular characters and translate them. You can change one or both secondary addresses, depending on your system and your needs.

Next, you get a chance to define a printer code to be sent at the start of each line. The default codes are for the Gemini 10X. All you have to do is change the code, plus the prompt on the line beside it, to match your system's capabilities. This code applies only to the line in question.

As you type in Form Writer, have your printer manual handy, because some of the Gemini 10X commands may not be available on your printer. On the Gemini 2, for example, the italic character set has been replaced with a near-letter-quality (NLQ) font. In most cases, however, all you need to do is change the codes that perform each task. If you own an Epson MX-80-compatible printer, you may find a minimum num-

ber of changes necessary. If yours is an exotic printer, you may have to perform major surgery to achieve special effects.

The printer commands are sent to the printer at the start of each line along the transparent secondary printer channel. Printer commands you send using the left-arrow character embedded in your form, on the other hand, are sent along the text channel, so they may be translated by your interface into true ASCII. Keep that in mind when changing the Form Writer listing.

One warning about embedded code: If you send a string of printable characters, the line printed will be longer than 80 characters. This is of no concern when you're printing in Condensed mode, sending nonprinting control characters to activate a special effect or sending a code that prints a single printing character (such as a user-defined character).

As I mentioned earlier, the embedded codes are located in line 6 of the program listing. The ten codes you can elect to send at the start of a line are located in lines 2820-2830.

The program always prints 80 characters to a line, so, if you plan to use an enlarged character size, remember to make the line shorter! There's no way to make a line longer than 80 characters to take advantage of smaller character sizes. The default printer codes reset the printer at the start of each line, so any special formatting must be done for each line individually.

When you're done defining your specially formatted lines, press return at the Select Line prompt to go back to the Set Printer menu. At this point, I'd suggest that you save the printer codes you've defined, because printer codes are erased whenever you open a database.

You can use a pattern of printer codes

with more than one database, just as you can use a database with more than one blank form (and vice versa). The Set Printer menu also lets you erase all printer codes in memory (as is done when you choose to set the codes) and load a set of codes you've previously defined. Saving printer codes also saves the printer device number and secondary address. Press return to go back to the Printer menu.

When you finally get around to printing your form, you can specify the number of lines to print, which is handy if the form is shorter than a full page. You can also print several copies without going back to the Printer menu.

Parts of the printing process are slow, particularly if you have a lot of fields to be generated. This is partially due to the fact that the field contents must be padded with spaces before being sent to the form. A little patience here goes a long way.

## TECHNICAL NOTES

The C-64 version of Form Writer uses the area under the Basic ROMs to hold the blank form, while the C-128 version uses the hi-res screen area. Lines 65-67 of the listing may seem strange: They undimension all arrays in memory (without losing any other variables!) whenever you open a database. In this way, smaller databases can have smaller arrays, and so take up less memory. Saving memory is unimportant on the C-128, but on the C-64 it eliminates a lot of needless delay due to garbage collection.  $\square$

*Tom Brown is a freelance programmer with both public domain and commercial programs to his credit. He recently authored RUN's telecommunications program, RUN Term 128.*

Listing 1. Form Writer program.

```

10 BANK15:C6=1:REM C128 ONLY          RETURN                :REM*29
   :REM*49                               90 PRINT:PRINT"(CRSR DN)HIT ANY
20 POKE53281,1:POKE53280,1:IFPEEK(787)=123THENGOSUB125:GOT
   EK(787)=123THENGOSUB125:GOT        KEY TO CONTINUE" :REM*174
   O610 :REM*159                          100 GETA$:IFA$=""THEN100
30 IFPEEK(787)=234THENPOKE787,1      110 RETURN                :REM*173
   23:C6=PEEK(1023):GOTO1980          120 PRINT"{SHFT CLR}{CTRL 4}"+"C
   :REM*50                                HR$(142)" {4 SPACES} {SHFT U}
40 POKE1023,C6:IF(C6=0)THENPOKE      {8 SHFT *s}{COMD R}{21 SHFT
   55,0:POKE56,154:CLR :REM*199        *s}{SHFT I} :REM*160
50 GOTO1180 :REM*131                    130 PRINT"{4 SPACES}{SHFT -}{8
60 DATA 72,69,76,76,79,0,0,0,0,    SPACES}{SHFT -}{CTRL 7}{CO
   0 :REM*134                             MD A}{17 SHFT *s}{COMD S}{C
70 RESTORE:FORX=0TO9:READA:POKE      TRL 4} {SHFT -} :REM*113
   (ML+25+X),A:NEXT:RETURN            140 PRINT"{4 SPACES}{SHFT -}{8
   :REM*199                                SPACES}{SHFT -}{CTRL 7}{COM
80 X=PEEK(53281):POKE53281,0:PR      D A}{COMD X}{CTRL 3}{CTRL 9
   INT"{SHFT CLR}":POKE53281,X:      ){17 SPACES}{CTRL 0}{CTRL 7
   )}{COMD Z}{COMD S}{CTRL 4}{S
   HFT -} :REM*250
150 PRINT"{4 SPACES}{SHFT -}{8
   SPACES}{SHFT -}{CTRL 7}{SHF
   T -}{CTRL 3}{CTRL 9}{19 SPA
   CES}{CTRL 0}{CTRL 7}{SHFT -
   }{CTRL 4}{SHFT -} :REM*29
160 PRINT"{4 SPACES}{SHFT -}{8
   SPACES}{SHFT -}{CTRL 7}{COM
   D Z}{COMD S}{CTRL 3}{CTRL 9
   }{17 SPACES}{CTRL 0}{CTRL 7
   }{COMD A}{COMD X}{CTRL 4}{S
   HFT -} :REM*134
170 PRINT"{4 SPACES}{SHFT -}{8
   SPACES}{SHFT -}{CTRL 7}{CO
   MD Z}{17 SHFT *s}{COMD X}{C
   TRL 4} {SHFT -} :REM*105

```

Continued on p. 80.

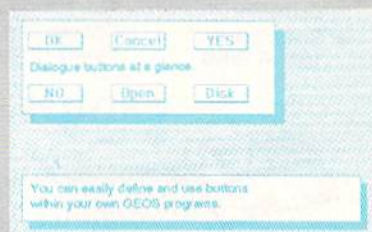
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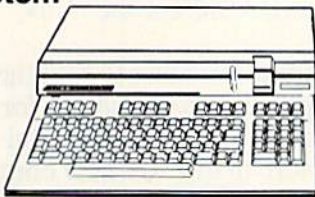
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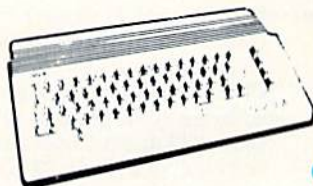


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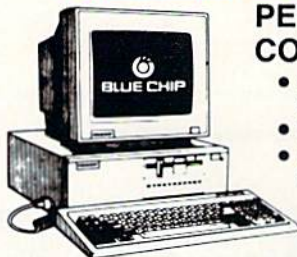
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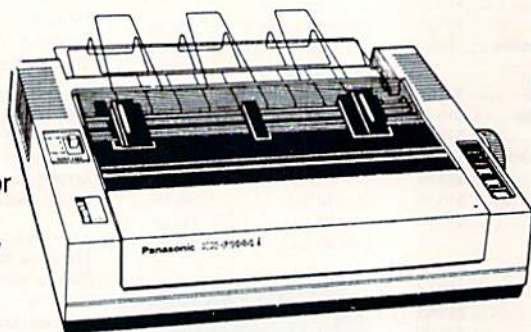
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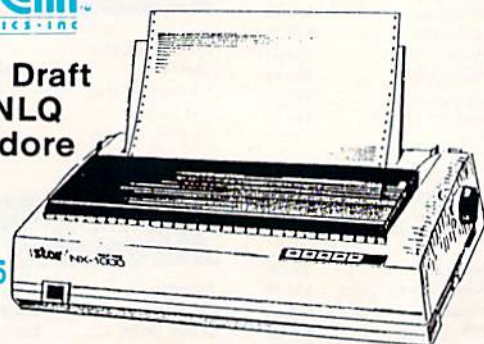
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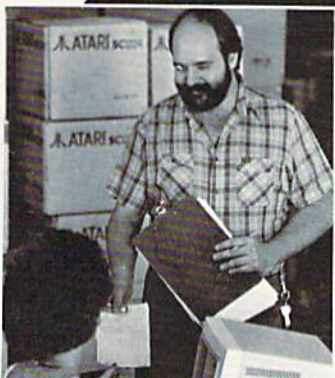
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Comparison of	Minimodem-C™	vs.	1670®
Hayes® Compatibility?	100%		Subset Only
Number of Status Indicators	7		0
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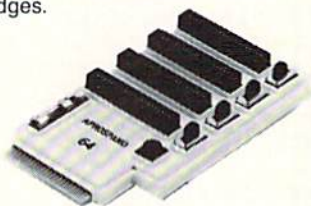
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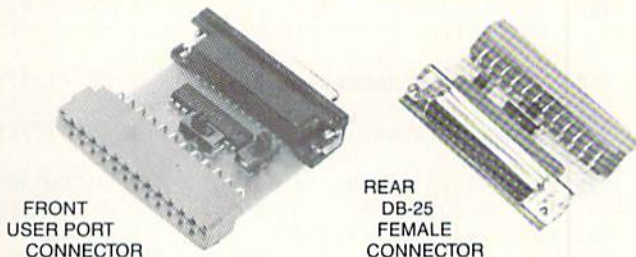
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# SPECIAL DELIVERY

```

130 PRINTRM$(RM(0)-1),1
      :REM*152
140 IFRM(0)=1THENPRINT"THERE IS
    A CLOSED GATE TO THE NORTH
    ."
      :REM*61
150 PRINT"(CTRL 9)YOU MAY GO(CT
    RL 0){2 SPACES}";FORZ=0TO3
    :IFD((RM(0)-1),Z)<>0THENPRI
    NTD$(Z)" ";
      :REM*59
160 NEXT:PRINT:FORZ=1TO11:IFTH(
    Z)=RM(0)THENPRINTT$(Z-1,0)
      :REM*12
170 NEXT:IFTH(3)=RM(0)THENGOSUB
    2110
      :REM*148
180 IFTH(8)=RM(0)THENGOSUB2220
      :REM*63
190 FORZ=1TOLEN(A$)
      :REM*131
200 IFMID$(A$,Z,1)<>" "THENNEXT
    :AB$(1)="":AB$(0)=A$:RETURN
      :REM*146
210 AB$(1)=MID$(A$,Z+1):AB$(0)=
    LEFT$(A$,Z-1):RETURN
      :REM*100
220 G$=A$+"{5 SPACES}":A$=LEFT$(
    G$,5):K=0:KK=43
      :REM*32
230 M=INT((K+KK)/2)
      :REM*233
240 IFA$=W$(M)THENQ=CD(M):RETUR
    N
      :REM*154
250 IFAS<W$(M)THENKK=M-1
      :REM*103
260 IFAS>W$(M)THENK=M+1:REM*198
270 IFK=MORKK=MTHENQ=0:RETURN
      :REM*113
280 GOTO230
      :REM*93
290 FORZ=0TO3:NM(Z)=0:NEXT:G$=M
    IDS(STR$(CC),2)
      :REM*4
300 FORZ=1TOLEN(G$):NM(Z-1)=VAL
    (MID$(G$,Z,1)):NEXT:RETURN
      :REM*8
310 IFRB(0)<5THENRB(0)=RB(0)+1:
    RETURN
      :REM*135
320 POKEV+28,PEEK(V+28)OR1
      :REM*209
330 POKEV+39,11:POKEV+16,1:POKE
    V+37,0:POKEV+38,1
      :REM*90
340 POKEV,65:POKEV+1,150
      :REM*144
350 POKE2040,13:POKEV+21,PEEK(V
    +21)OR1:Z=14
      :REM*181
360 FORX=65TO25STEP-1:L=0:POKEV
    ,X:POKE2040,Z:IFZ=14THENZ=1
    5:L=1
      :REM*243
370 IFZ=15ANDL=0THENZ=14:REM*63
380 NEXT
      :REM*255
390 POKE2040,13
      :REM*192
400 RB(1)=RM(0)
      :REM*94
410 PRINT"A LITTLE RABBIT IS FO
    LLOWING YOU!":RETURN
      :REM*151
420 PRINT"SORRY, YOU ARE DEAD."
    :GOTO990
      :REM*134
430 IFTH(0)<2THENTH(0)=TH(0)+1:
    RETURN
      :REM*91
440 PRINT"IT IS RAINING."
      :REM*241
450 IFTH(2)=22THENPRINT"LUCKY Y
    OU HAVE A RAIN COAT!":TH(0)
    =2:RETURN
      :REM*103
460 IFTH(0)<5THENTH(0)=TH(0)+1:

```



```

      :REM*13
470 PRINT"THE LETTER IS GETTING
    WET NOW."
      :REM*42
480 IFTH(0)<10THENTH(0)=TH(0)+1
    :RETURN
      :REM*32
490 PRINT"THE LETTER IS SLOWLY
    MELTING."
      :REM*13
500 TH(0)=TH(0)+1:IFTH(0)>14THE
    NPRINT"THE LETTER IS GONE.
    SORRY."
      :GOTO990
      :REM*134
510 RETURN
      :REM*142
520 FORZ=1TO70:POKES2,131
      :REM*188
530 GOSUB20:GOSUB310:GOSUB430
      :REM*248
540 AV(RM(0)-1)=1
      :REM*73
550 PRINTP1$:PRINTS$:PRINTP1$
      :REM*47
560 GETAS:IFAS<>"":GOTO550
      :REM*105
570 INPUT"YOUR MOVE ";A$
      :REM*229
580 GOSUB190:A$=AB$(0):GOSUB220
    :CC=Q:GOSUB290:CC=NM(1)+NM(
    0)*10
      :REM*199
590 PRINTS1$
      :REM*180
600 IFQ=0ORCC<11THENPRINTC$(6):
    GOTO550
      :REM*63
610 K=CC-10:IFCC>19THENK=CC-19:
    GOTO630
      :REM*30
620 ONKGOTO650,740,770,870,910,
    920,930,1030,1050
      :REM*80
630 ONKGOTO1050,1070,1260,1340,
    1380,1390,1430,1060
      :REM*50
640 PRINTC$(6):GOTO550
      :REM*158
650 M=NM(2):FORX=0TO2:CC=OB(X):
    GOSUB290
      :REM*173
660 IFRM(0)<>NM(3)+NM(2)*10THEN
    NEXT:GOTO710
      :REM*232
670 IFNM(1)<>MOROB(X)<0THENNEXT
    :GOTO710
      :REM*115
680 PRINTC$(NM(0)-1):GOTO550
      :REM*218
690 IFRM(0)=NM(3)+NM(2)*10THENI
    FOB(X)>0THENPRINTC$(NM(0)-
    1):X=2:NEXT:GOTO550
      :REM*46
700 NEXT
      :REM*61
710 K=D((RM(0)-1),M)
      :REM*75

```

```

720 IFK=0THENPRINT"YOU CAN'T GO
    THAT WAY!":GOTO550:REM*136
730 RM(0)=K:GOTO530
      :REM*49
740 IFRM(0)<>1ANDRM(0)<>2THENPR
    INT"YOU CAN'T CLIMB HERE."
    :GOTO550
      :REM*16
750 IFRM(0)=1THENRM(0)=2:GOTO53
    0
      :REM*130
760 RM(0)=1:GOTO530
      :REM*136
770 IFAB$(1)="":THENPRINT"GET WH
    AT?":GOTO550
      :REM*170
780 A$=AB$(1):GOSUB220:IFQ=0THE
    NPRINTC$(5):GOTO550:REM*132
790 IFQ=30ORQ=50ORQ=7THENPRINTC$(
    4):GOTO550
      :REM*187
800 IFQ>11THENPRINTC$(3):GOTO55
    0
      :REM*107
810 IFAV(0)>4THENPRINT"YOUR ARM
    S ARE FULL.":GOTO550
      :REM*184
820 IFTH(Q)=22THENPRINT"YOU ALR
    EADY HAVE IT.":GOTO550
      :REM*29
830 IFQ=8THENPRINT"THE DOG BITE
    S YOU AND GIVES YOU RABIES."
    :GOTO420
      :REM*101
840 IFTH(Q)<>RM(0)THENPRINT"I D
    ON'T SEE "T$(Q-1,1)" HERE."
    :GOTO550
      :REM*75
850 IFQ=3THENPRINT"IT BITES! AN
    D, IT'S POISONOUS!":GOTO420
      :REM*70
860 TH(Q)=22:AV(0)=AV(0)+1:PRIN
    T"OK":GOTO550
      :REM*168
870 IFAB$(1)="":THENPRINT"DROP W
    HAT?":GOTO550
      :REM*156
880 A$=AB$(1):GOSUB220:IFQ=0ORQ
    >11THENPRINTC$(5):GOTO550
      :REM*18
890 IFTH(Q)<>22THENPRINT"YOU DO
    N'T HAVE IT.":GOTO550
      :REM*118
900 TH(Q)=RM(0):AV(0)=AV(0)-1:P
    RINT"OK":GOTO550
      :REM*166
910 PRINT"YOU HAVE NO WEAPON.":
    GOTO550
      :REM*41
920 PRINT"NO ONE WILL SAVE YOU."
    :GOTO550
      :REM*243
930 IFRM(0)=1ORRM(0)=2THENPRINT
    "KNOCKING ON THE GATE DOES
    NO GOOD.":GOTO550
      :REM*222
940 IFRM(0)<>20THENPRINT"KNOCKI
    NG ON A TREE IS STUPID!":GO
    TO550
      :REM*87
950 LL=0:IFTH(11)=22GOTO970
      :REM*14
960 PRINT"WHEN YOU KNOCK,THE HE
    RMIT SEES NO LETTERAND SHOO
    TS!":LL=1:GOTO2340
      :REM*31
970 PRINT"WHEN YOU KNOCK AN OLD
    MAN OPENS THE DOORAND TAKE
    S THE LETTER."
      :REM*130
980 PRINT"YOU HAVE WON THE GAME
    !"
      :REM*64
990 PRINT"PLAY AGAIN? (Y/N){2 S
    PACES}";
      :REM*242
1000 GETAS:IFAS<>"Y"ANDAS<>"N"G
    OTO1000
      :REM*4

```

*Continued on p. 88.*

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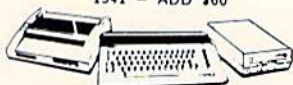


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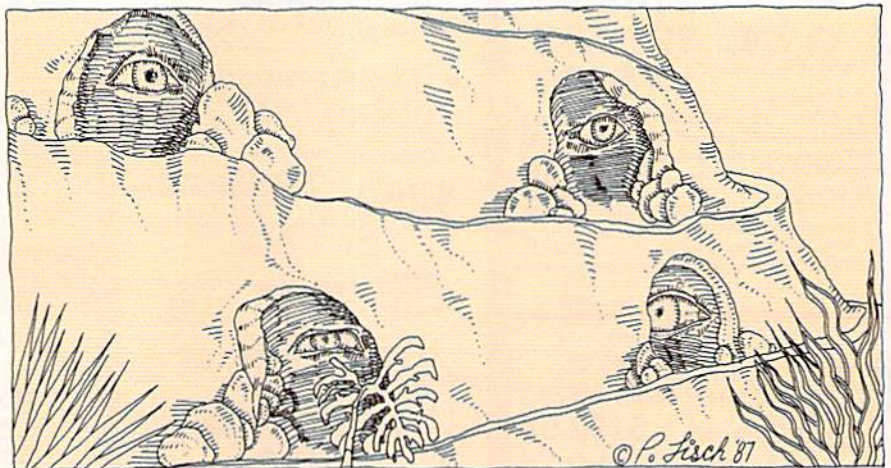


By PENNY DEGROFF

**Y**ou pay \$30 for a popular arcade game, and, in spending several hours or days playing it, you just can't get past the third level. If this sounds familiar, you'll enjoy playing Now You See It. This game has only eight levels, and Carkey, the main character, is indestructible. All he has to do is walk around inside Tinshor Cave and pick up pieces of yendor, a valuable metallic substance. There are ten pieces of yendor on each of the eight levels. Sounds easy, right?


Wrong! If you've ever been in a cave, you know that the farther you go, the darker it gets. The first level of Now You See It is a cinch. All Carkey has to do is to tour the cave, guided by a joystick in port 2, and pick up the pieces of yendor. As he proceeds, the number in the upper-right corner of the screen displays how many pieces remain.

After collecting all ten pieces, Carkey automatically descends to level 2. Since it's darker there, it's harder to see the passages. If Carkey keeps bumping into walls, press the fire-button. This lights



the cave, but it also freezes Carkey in his tracks. Release the fire-button, and the walls disappear again.

All the time that Carkey is moving through the cave, the numbers in the upper-left corner of the screen tell how much time has elapsed. Once the clock starts, it doesn't stop until all eight levels have been completed.

In each of the lower levels, different things or combinations of things are obliterated by the darkness. If this still sounds like an easy game, try to play it in five minutes or less! 

*Penny DeGross is a freelance author and a programmer of educational and arcade games for the C-64.*

## Listing 1. Now You See It program.

```

1Ø POKE52,48:POKE56,48:CLR:DIMD      HENDI=-1:C=1:GOTO13Ø:REM*141      IFPR=ØTHEN19Ø      :REM*53
  $(24),PP(8,1Ø),WS(8):D$(Ø)="      9Ø IFJS=7THENDI=1:C=3:GOTO13Ø      18Ø GOTO4Ø      :REM*55
  {HOME}"      :REM*87      19Ø TT$=TI$:FORDE=1TO1ØØØ:NEXT:
2Ø FORX=1TO24:D$(X)=D$(X-1)+"{C      1ØØ C=2:IFJS=14THENDI=-4Ø:GOTO1      RESTORE:FORX=1TO5:READHI,LO
  RSR DN}":NEXT:GOTO43Ø      3Ø      :REM*97      :POKE54287,HI      :REM*53
      :REM*224      11Ø IFJS=13THENDI=4Ø:GOTO13Ø      2ØØ POKE54286,LO:POKE5429Ø,17:F
3Ø PRINTD$(1)MID$(TI$,1,2)": "MI      :REM*249      ORDE=1TO9Ø:NEXT:POKE5429Ø,1
  D$(TI$,3,2)": "MID$(TI$,5,2):      12Ø GOTO4Ø      :REM*248      6:FORDE=1TO5Ø:NEXT :REM*92
  RETURN      :REM*24Ø      13Ø IFPEEK(OP+DI)=16ØTHENPOKE54      21Ø NEXT      :REM*85
4Ø GOSUB3Ø:FB=PEEK(5632Ø)AND16:      276,129:POKE54276,128:GOTO4      22Ø LE=LE+1:IFLE=9THEN35Ø
  IFFB=16THEN8Ø      :REM*53      Ø      :REM*1Ø3      :REM*2Ø
5Ø POKE5328Ø,14:POKE53281,14      14Ø NP=OP+DI:TN=PEEK(NP):POKENP      23Ø PRINT"{SHT CLR}":POKE5328Ø
      :REM*84      +54272,CC:POKEOP,32:POKENP,      ,6:POKE53281,2:POKE646,1:PO
6Ø GOSUB3Ø:FB=PEEK(5632Ø)AND16:      C:POKEOP+54272,Ø      :REM*25      KE53272,(PEEK(53272)AND24Ø)
  IFFB=ØTHEN6Ø      :REM*86      15Ø OP=NP:IFTN=ØTHEN17Ø :REM*59      OR6      :REM*121
7Ø POKE5328Ø,Ø:POKE53281,Ø:GOTO      16Ø GOTO4Ø      :REM*35      24Ø PRINTD$(12)TAB(11)"LEVEL"LE
  4Ø      :REM*239      17Ø POKE54283,17:POKE54283,16:P      "IS NEXT..." :FORDE=1TO1ØØØ:
8Ø JS=PEEK(5632Ø)AND15:IFJS=11T      R=PR-1:PRINTD$(1)TAB(38)PR:      NEXT      :REM*134

```

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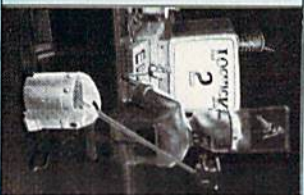
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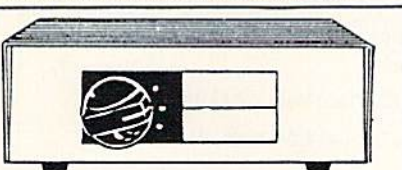
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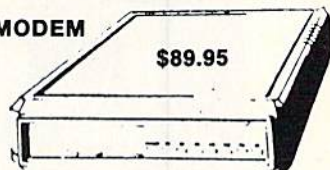
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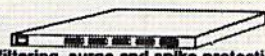
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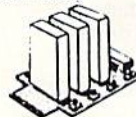
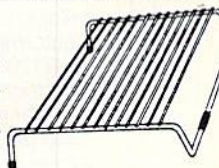
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
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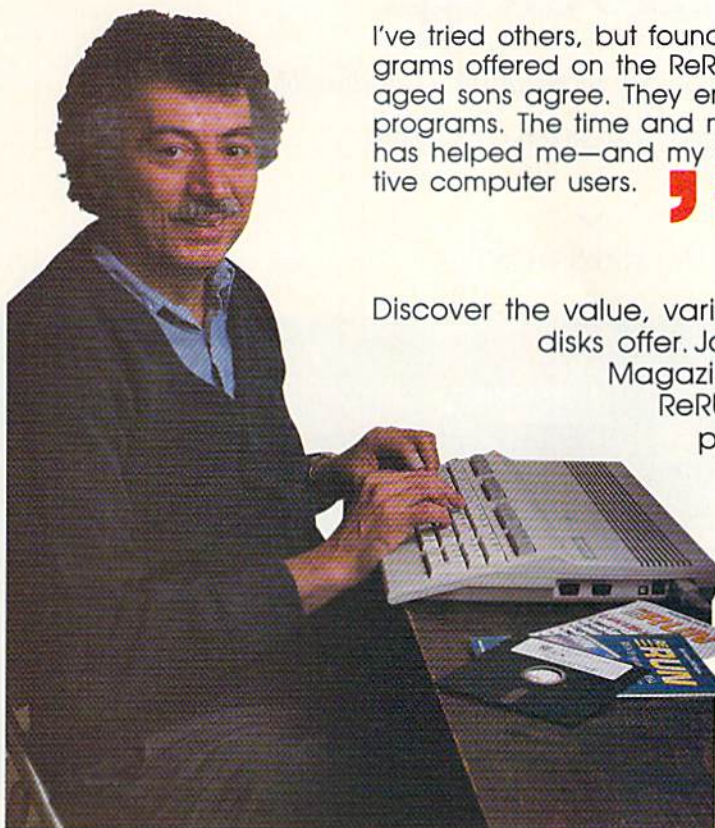
```

ACES)" :REM*122
940 PRINTD$(18)SPC(6)" {CTRL 9}{
5 SPACES}"SPC(18)" {5 SPACES
}" :FORX=10TO16 :REM*184
950 PRINTD$(X)SPC(10)" {CTRL 9}
"SPC(18)" :NEXT:RETURN
:REM*181
960 FORX=10TO16STEP3:PRINTD$(X)
SPC(15)" {CTRL 9}{10 SPACES}
" :NEXT:FORX=3TO9 :REM*74
970 PRINTD$(X)SPC(9)" {CTRL 9}{
2 SPACES}" :NEXT:FORX=17TO23
:PRINTD$(X)SPC(19)" {CTRL 9}
{2 SPACES}" :NEXT :REM*37
980 PRINTD$(6)SPC(10)" {CTRL 9}{
20 SPACES}" :REM*1
990 PRINTD$(20)SPC(10)" {CTRL 9}
{20 SPACES}" :FORX=7TO12
:REM*18
1000 PRINTD$(X)SPC(10)" {CTRL 9}
"SPC(18)" :NEXT:FORX=14T
O19 :REM*144
1010 PRINTD$(X)SPC(10)" {CTRL 9}
"SPC(18)" :NEXT:RETURN
:REM*72
1020 FORX=4TO20STEP4:PRINTD$(X)
SPC(10)" {CTRL 9}{6 SPACES}
{CRSR RT}{6 SPACES}{CRSR R
T}{6 SPACES}" :REM*251
1030 PRINTSPC(11)" {CTRL 9}{4 SP
ACES}{3 CRSR RTs}{4 SPACES}
}{3 CRSR RTs}{4 SPACES}" :P
RINTSPC(10)" {CTRL 9}{6 SPA
CES}{CRSR RT}{6 SPACES}{CR
SR RT}{6 SPACES}" :REM*132
1040 NEXT:RETURN :REM*182
1050 DATA 34,75,40,200,34,75,40
,200,45,198,54,111,54,111,
45,198,40,200,45,198
:REM*147
1060 DATA 45,198,1474,1493,1634
,1653,1561,1566,1547,1580,
1551,1576,1242,1245:REM*16
1070 DATA 1882,1885,1553,1574,1
386,1421,1706,1741,1355,13
60,1367,1372,1755,1760
:REM*75
1080 DATA 1767,1772,1562,1565,1
522,1524,1602,1604,1354,13
73,1754,1773,1545,1582
:REM*34
1090 DATA 1230,1239,1248,1257,1
870,1879,1888,1897,1548,15
79,1547,1549,1553,1555
:REM*177
1100 DATA 1562,1565,1572,1574,1
578,1580,1545,1582,1202,12
05,1360,1367,1760,1767
:REM*97
1110 DATA 1922,1925,1234,1253,1
874,1893,1399,1408,1719,17
28,1561,1566,0,28,54
:REM*24
1120 DATA 34,54,28,0,0,12,30,12
,124,12,20,36,108,28,54,28
,99,28,20,54,0,48,120
:REM*107
1130 DATA 48,62,48,40,36,54
:REM*34

```

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# RE RUN

# Unlockup

*Got important data locked up in memory? That horrible feeling can largely be locked out for good.*



By JAMES HOST

One of the most trying experiences a Commodore 64 user faces is lockup, which, as the word implies, locks up, or freezes, the program in memory. The program refuses every effort on your part to resume running, the run-stop/restore combination has no effect, and the computer doesn't respond to any keypresses. Sometimes a lockup displays the Ready prompt with a flashing cursor, but the computer remains unresponsive to any Basic Direct mode commands.

In any case you're forced to perform one of two actions, and both are unpalatable: reset the computer or turn it off and on again. In either case, you lose the Basic program in memory.

Unlockup gives you both a soft reset and an un-New feature. With Unlockup, you can usually recover a Basic program.

## UNLOCKING UNLOCKUP

Although the active portion of Unlockup is written in machine language, the ML is encoded in Data statements. Once you've typed in the program (use RUN's Checksum to catch errors in typing), save a copy before running it, because Unlockup resets the computer during its initialization and will wipe out the Basic program in memory.

When you run Unlockup, it's installed at the top of Basic memory and executes in the background while other programs are running. Load and run other programs as you normally would.

Now you're prepared for any lockup! When it happens, hold down the control key and tap restore. The computer will reset, and the C-64 power-up message will appear (with fewer bytes free, of course), along with the prompt, Do you want to un-New (y/n)?

To recover the Basic program, type Y; you'll see the Load command, but



nothing will be loaded. Instead, Basic is working to restore the lost line-links in the program you're recovering. Following the un-New operation, you can list and save your Basic program normally. In fact, if at some time you accidentally type NEW, you can recover your program by hitting control/restore and answering Y to the un-New query.

## OTHER USEFUL FEATURES

In addition to its crash-recovery features, Unlockup re-enables the stop key and run-stop/restore combination (but is not itself disabled by run-stop/restore)

for Basic programs that would otherwise be disabled. You can also set Unlockup's default colors for Basic's Direct mode if you're tired of the C-64's default blue characters, screen and border colors—just change the numbers in the REM Data statements near the end of the Unlockup Basic loader. The current numbers display a dark-gray text, medium-gray border and light-gray background.

*James Host, a freelance programmer and technical writer, wrote educational assembly language programs currently in use on PC clones at a Los Angeles community college.*

## Listing 1. Unlockup program.

```

0 REM UN-LOCKUP BY JAMES HOST          NG ML, PLEASE WAIT..."
                                :REM*41
10 POKE 52,127:POKE 56,127:CLR        50 J=40400
                                :REM*2182
20 PRINT "{SHFT CLR}AFTER ACTIV      60 READ A:IF A>-1 THEN POKE J,A
   ATING "CHR$(34)"UN-LOCKUP"CH      :J=J+1:GOTO 60
   R$(34)" PRESS"                    :REM*136
30 PRINT "CONTROL/RESTORE TO RE     70 SYS 40400:END
   SET YOUR COMPUTER."              :REM*88
40 RESTORE:PRINT"{CRSR DN}LOADI    80 DATA 120,162,255,154,32,132,
                                255,32,135,255,162,208,160,1
                                57,24,32,153
                                :REM*210
00 DATA 255,32,138,255,32,129,2

```

RUN it right: C-64

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RUN NOTEPAD places an electronic pad, pencil and eraser at your fingertips. Allows for instant access to a text window for jotting down and recalling your programming notes . . . without interrupting the original screen display.

### RUN DEX

For C-64 users, a handy program that lets you index names, addresses and phone numbers. Perfect for keeping track of your son's Little League teammates, your daughter's Girl Scout Troop members, customers for your small business and all the people that serve on committees with you.

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# UNLOCKUP

55,173,192,159,141,134,2,173 ,193,159,141 :REM*185	,173,38,3,141,33 :REM*171	280 DATA 0,220,173,1,220,160,0, 162,0,205,1,220,208,244,201 ,251,208,9,200 :REM*23
100 DATA 32,208,173,194,159,141 ,33,208,169,8,141,38,3,169, 158,141,39,3,88 :REM*147	190 DATA 159,173,39,3,141,34,15 9,173,40,3,141,5,159,173,41 ,3,141,10,159 :REM*174	290 DATA 208,253,232,208,250,76 ,208,157,104,133,1,140,154, 159,104,168,104 :REM*241
110 DATA 108,0,160,8,120,72,138 ,72,152,72,32,138,255,173,0 ,3,141,246,158 :REM*98	200 DATA 173,24,3,141,106,159,1 73,25,3,141,107,159,169,248 ,141,38,3,169 :REM*187	300 DATA 170,104,76,0,0,32,145, 158,160,0,132,45,169,8,133, 46,162,0,177,45 :REM*165
120 DATA 173,1,3,141,247,158,16 9,49,141,0,3,169,158,141,1, 3,104,168,104 :REM*231	210 DATA 158,141,39,3,169,212,1 41,0,3,169,158,141,1,3,169, 0,141,154,159,88 :REM*77	310 DATA 208,7,232,224,3,240,12 ,208,2,162,0,230,45,208,239 ,230,46,208,235 :REM*59
130 DATA 170,104,40,108,38,3,8, 72,152,72,138,72,32,145,158 ,160,0,185,155 :REM*70	220 DATA 96,8,120,72,169,248,14 1,38,3,169,158,141,39,3,173 ,192,159,141,134 :REM*200	320 DATA 230,45,208,2,230,46,16 6,45,164,46,24,96,30,13,13, 32,68,79,32,89 :REM*186
140 DATA 159,240,6,32,210,255,2 00,208,245,32,228,255,201,7 8,240,6,201,89 :REM*171	230 DATA 2,173,193,159,141,32,2 08,173,194,159,141,33,208,1 04,40,76,0,0,8 :REM*217	330 DATA 79,85,32,87,65,78,84,3 2,84,79,32,85,78,45,78,69,8 7,32,40,89,47,78 :REM*225
150 DATA 240,19,208,243,32,210, 255,169,13,32,210,255,104,1 70,104,168,104 :REM*34	240 DATA 72,169,43,141,24,3,169 ,159,141,25,3,169,237,141,4 0,3,169,246,141 :REM*39	340 DATA 41,63,0,76,79,65,68,13 :REM*250
160 DATA 40,76,212,158,32,210,2 55,169,13,32,210,255,120,16 0,0,185,187,159 :REM*174	250 DATA 41,3,169,35,141,250,25 5,141,254,255,169,159,141,2 51,255,141,255 :REM*38	350 DATA 11:REM TEXT COLOR :REM*8
170 DATA 153,119,2,200,192,5,20 8,245,132,198,169,108,141,4 8,3,169,159,141 :REM*133	260 DATA 255,104,40,76,0,0,120, 72,169,55,133,1,104,64,120, 72,138,72,152,72 :REM*188	360 DATA 12:REM BORDER COLOR :REM*173
180 DATA 49,3,169,8,141,1,8,141 ,2,8,208,203,120,32,138,255	270 DATA 173,154,159,208,46,238 ,154,159,165,1,72,169,54,13 3,1,169,127,141 :REM*245	370 DATA 15:REM BACKGROUND COLO R :REM*20
		380 DATA -1 :REM*238

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# GEOWATCH

Create GEOS applications with *geoProgrammer*, a new assembly language development system.

By RANDY WINCHESTER

**B**ack in 1986, when most C-64 applications were text-based and disk access was slow, the introduction of the GEOS operating system was a major event. Since 1987, Berkeley has been encouraging programmers to develop their own GEOS applications, but few of the available assemblers have been able to handle the detailed GEOS source code listings, and none of them have been able to produce an entire GEOS application.

To rectify this situation, Berkeley has released *geoProgrammer*, a scaled-down version of the programming environment in which they designed GEOS. Although it's scaled down, Berkeley claims that *geoProgrammer* provides nearly all the functions of their own system.

The package, which sells for \$69.95, consists of the *geoAssembler*, *geoLinker* and *geoDebugger* programs, sample source code for three GEOS applications and over 400 pages of documentation. Other files on the disk include complete listings of GEOS symbols, constants, routines and macros, as well as a memory map—everything necessary to begin programming.

The immense user's manual, written by Matthew G. Loveless, is exceptional. It clearly covers all the features of the assembler, linker and debugger, leads you step by step through production and debugging of a sample application and provides a 14-page glossary of programming terminology. The index is organized both by subject and alphabetically.

The manual also offers source code files for sample VLIR and sequential applications and a sample desk accessory. These programs, which aren't available from other sources, are included on the disk, too, and you're free to use them as the basis for your own applications.

## GEOASSEMBLER

The heart of the *geoProgrammer* package is *geoAssembler*, which is responsible for reading assembly language source code and producing re-

locatable machine language object files. What makes *geoAssembler* distinctive is its use of resources in the GEOS environment. For instance, source code for *geoAssembler* is typed in with *geoWrite*, and all of the word processor's special features, such as various fonts and type styles, are available. Since assembly language is often repetitive, you'll find *geoWrite*'s cut-and-paste functions especially helpful for preparing source code.

Icons and other bitmap images you create with *geoPaint* can also be added to source code with *geoWrite*'s cut-and-paste functions. Whenever *geoAssembler* encounters a Photo Scrap, it translates the image into binary data. Incorporating graphics into a program has never been easier.

Source code for *geoAssembler* uses symbols, standard assembly language mnemonics and addressing modes. In a symbolic assembler, symbols can be defined to represent constants, variables and sections of code, such as subroutines. Unlike other assemblers, Berkeley's recognizes symbols up to 20 characters long and containing both upper- and lowercase characters.

Another time-saving feature of *geoAssembler* is its provision for macros, which are handy for such operations as moving a byte from one memory location to another.

*GeoAssembler* contains a built-in expression evaluator that's capable of 16-bit math and provides 26 math and logical operators, including such uncommon ones as bitwise ones-complement and modulus (remainder of integer division). The evaluator can also differentiate between logical and bitwise AND, OR and XOR operations.

Conditional assembly will let you assemble sections of code or not, depending on the values of expressions. In this way, different versions of your program can be assembled from the same source code. Conditional assembly is commonly used to include special code for test versions of a program.

*GeoAssembler* is one of the fastest assemblers ever written for the C-64.

Crunching a test file of 390 lines of source code took me 2½ minutes using a standard assembler, while this program took only 45 seconds—and that was with both the input and output files on disk. Assembly can go even faster when you exploit the high-speed input and output of a RAM expansion unit. In fact, a RAM expander is highly recommended for use with *geoProgrammer*.

When *geoAssembler* encounters errors during assembly, they're sent to an error file. The program produces 52 different error messages that are exceptionally descriptive, pointing out the exact spot in the source code where the error is located.

## GEOLINKER

Unlike many assemblers, Berkeley's doesn't produce runnable programs directly, because all the object files it creates are relocatable. The files are adjusted to run in specific parts of memory by *geoLinker*. This program also can combine multiple object files into executable programs, enabling you to build a library of modules for performing common routines.

To simplify the linking of modules, *geoLinker* supports external references—symbols that reside in one module and are called from another. For example, your main application module might call a module to clear the screen. When *geoLinker* links such files, it resolves the external reference by assigning an address to the clear-screen subroutine. Atypical of linkers and assemblers, Berkeley's don't require that external references be declared.

Among *geoLinker*'s GEOS-specific functions are its ability to attach file headers and create VLIR applications. The header is the part of a file containing its deskTop icon and information about the file's purpose. VLIR applications consist of a main module with overlay modules that are loaded into memory as required. Before *geoProgrammer*, both of these structures were difficult to manipulate. Now, *geoLinker* links them automatically.

*GeoLinker* operates in much the



same way as geoAssembler. It accepts commands from a geoWrite file and produces a detailed error file if things go sour during the linking process.

### GEODEBUGGER

Bugs are a fact of life for programmers, infesting even the most carefully planned code. However, geoDebugger provides the right tools to rout them out of your GEOS applications.

GeoDebugger is actually two programs in one. If you use a 1750 or 1764 RAM expander, double-clicking on the geoDebugger icon loads the full-featured Super-Debugger into expansion RAM. With this program's more than 80 commands, you can flip almost any bit in your computer.

Using geoWrite, you can create macros to add or alter Super-Debugger commands as desired. The macros may contain as many as 250 keystrokes and are loaded automatically when you run geoDebugger. If a macro named Auto-Exec is included in the macro file, it will configure geoDebugger to your liking during startup.

If you don't have a RAM expansion unit, you must use the alternative geoDebugger program, Mini-Debugger. It offers most of the functions of Super-Debugger, but because it resides in the computer's RAM, it may get in the way of the application you're debugging.

At first glance, geoDebugger looks much like the monitor program built into the C-128. However, it provides additional features, such as commands for reading disk sectors into a buffer, altering them and then writing them back to disk.

The operation of geoDebugger is reminiscent of some of the software-transparent memory dump and screen dump cartridges that halt a program to carry out their functions. It sits out of harm's way in the RAM expander (or an unused part of memory, if you're using Mini-Debugger) and gives the program you're debugging free reign of the computer.

GeoDebugger maintains its own screen. You can toggle between it and

your application screen by pressing the F7 key.

Disassembling an application with geoDebugger is a pleasure. During linking, geoLinker sends symbols and their addresses to a debugging file, then geoDebugger fetches them from this file while disassembling. As a result, the disassembled code closely resembles the original source code.

### SUMMARY

The geoProgrammer programs are relatively bug-free, but I did encounter a couple of aggravations in using them. First, in spite of all the commands available in geoDebugger, there's no way to send output to a printer. I sorely missed this function, which is basic in many simple monitors.

Second, and even more bothersome, is the way files are replaced without warning during saves. If you want to preserve an assembled version of an application, you must rename it or transfer it to another disk; otherwise you'll lose it during the next assembly. GeoLinker suffers from the same problem. If you specify the same name for your output file as your source code file, your source code will be overwritten when the file is linked—and you'll never get it back!

There were problems with both geoAssembler and geoLinker in the first version of geoProgrammer to be shipped, but Berkeley released patches to make them run properly. Interestingly enough, geoDebugger is used to install the patches. The patch file is available on QuantumLink.

In spite of these glitches, geoProgrammer is an excellent package. It combines powerful, easy-to-use programming tools and a thorough, clearly written manual into a complete assembly language development system that should meet the needs of even the most demanding programmer. ■

*Randy Winchester has been writing GEOS applications for a year and a half. His first utility, SEQ—TextScrap, is available on QuantumLink and BBSs.*

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# TELECOMPUTING WORKSHOP

*Who broke this BBS? Also, shop, get stock reports and go prospecting, all on a bulletin board system.*

By DAVID BRADLEY

BBS'S WITH AN UNUSUAL TWIST are the first subject of this month's Telecomputing Workshop. One of them you can run yourself; the others are online, ready to receive your call.

First, Matchmaker Enterprises, producer of the Dial-Your-Match BBS software I mentioned last month, also sells a BBS program called Fantasy Plaza that runs an online shopping mall. The manual included with the package is thorough, and the system is efficient and easy to run. While the files that make up the system are stored on disk, orders for products are stored on datasette tape. This probably seems surprising, but it ensures that you won't run out of space if a lot of messages or orders come in. For more information about Fantasy Plaza, write to Matchmaker Enterprises, PO Box 6055, Burbank, CA 91510.

Speaking of shopping, if you'd like to browse online instead of tending the store, call the SunCoast Shopping System, a 300-baud BBS open around the clock at 813-924-7113 in Florida. Log on, look around and make some online purchases.

If you're a prospector or rockhound, there's a BBS in Moscow, Pennsylvania, just for you. Called Indian Affairs, it can be reached at 717-842-6605 any hour of day or night, and it operates at both 300 and 1200 baud. When you get there, leave a message for The Indian.

How would you like to get *free* stock market forecasts? They're yours for a call to the Stock Market BBS at 408-733-9341. This system also runs 24 hours a day at 300 and 1200 baud. For more information about it and background information on the SYSOP, write or call Dr. Wallace Lin, PO Box 60842, Sunnyvale, CA 94088-0842; 408-720-8002.

Robyn Marcus updates a list of Commodore BBSs in and around Dallas, Texas, on a weekly basis. If you do the same or similar in your area, or would like his list, give Robyn's BBS a call anytime. The number is 214-570-3930.

## THE GOOD AND THE BAD...

After reading about the TCM-1200H modem from Trans Com in last No-

vember's Telecomputing Workshop, Frederick R. Claus of Frankfort, Kentucky, decided to take the 1200-baud plunge. The modem arrived three days after he ordered it, and he's "extremely pleased with its operation." He also likes the public domain software, MultiTerm, that came with it. In case you're not familiar with this modem, it's a Hayes clone that comes out of the box ready to be plugged into the user port of a Commodore computer—and it costs less than \$150.

If you use the Data-Net public domain BBS program and are interested in getting updates, write to Spencer Ray, PO Drawer "0"-C7, Milledgeville, GA 31061-0380.

Sylvia Payne, of Rio Piedras, Puerto Rico, wrote me a sad letter outlining how her system had been damaged by lightning and asking if lightning insurance is available for computers. The large insurance firms I spoke to all said that normal home policies cover lightning damage to computers and that the typical coverage is around \$2000. This amount can usually be increased if you want, but, of course, it'll cost a bit more.

Sylvia says she saw an ad for insurance a long time ago, but decided that lightning damage could never happen to her... Now, whenever the sky threatens, she unplugs everything. It's cheaper to shut down for a while than lose your work and your computer!

This month's reader questions begin with one about BBS liability:

**Q** *I have a Telelearning modem, a C-64, a 1541 disk drive and an 1802 color monitor. Recently, I logged onto a BBS, talked for about a half hour, then logged off. Later, the SYSOP called me on the phone to say I'd broken his board. I had no problems while I was logged on, the only files I accessed were the user list and the password change option, and I'd never had any problems with his BBS before. The SYSOP wants me to pay for the damage, but I refuse; I don't think I could have broken his system. Am I right?*

—JAMES SCHOCH  
EWING, NJ

**A** I don't see how you could have "broken" his BBS. Even if his disk drive had burst into flames (not to be confused with Burst mode on the 1571/81), I don't know of any command you could have entered or magic words you could have chanted that might be responsible. Probably, something like a disk error just happened to pop up while you were online.

**Q** *I started in telecommunications by buying Q-Link's special package that includes a free Commodore 1660 modem. The only software they sent with it was their own, and now I want to access other services. I've read that you're not enthusiastic about Common Sense, so what program would you suggest and where can I get it?*

—THOMAS HAWKINS  
NORTH CLARENDON, VT

**A** A lot of fine terminal programs for the 1660 are available in the public domain. If you're still on Q-Link, look in the Telecommunications libraries or the TPUG area in the User Group Support area of the Commodore Information Network. You can also order 1660 programs from the public domain sources listed on pages 71 and 85 in last April's *RUN*.

The reason I don't recommend Common Sense isn't the program—some users love it. However, the manual is confusing and usually frustrating to beginners. It would have been nice if the people who wrote the manual had a bit of "common sense."

**Q** *I'm planning to start a BBS. Where can I get good commercial or public domain bulletin board software?*

—DON FERRARO  
UPPER DARBY, PA

**A** Get the April 1988 issue of *RUN*, and on page 44 you'll find a list of commercial BBS programs and where to get them. You can also refer to the lists of public domain software suppliers in the same issue. ▶

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# TELECOMPUTING WORKSHOP

**Q** My system includes a 64C, two 1541s and a Commodore 1650 modem, and I use the Cesars Term V2.3 terminal program with it. I'm thoroughly pleased with the software, except for the fact that it won't tone dial. I've tried everything, but to no avail. Is there a way to tell the program my modem is a 1670, or the like, running at 300 baud? Then I'd be able to tone dial.

—WALKER MCWEE  
ADDRESS UNKNOWN

**A** Your problem isn't in the software. The 1650 is a pulse-dialing modem only, so it just can't dial with tones, and telling the program you have a 1670 won't do any good. However, there is a small public domain program that might help. Written by Bob Huff, it creates tones through the 64's SID chip. To use it, you must hold your phone over the speaker in your monitor and then listen for a carrier. The program is available on a TPUG (Toronto PET Users Group) disk. I know, because I put it there. You can contact TPUG at 5300 Yonge St., Toronto, Ontario, Canada M2N 5R2; 416-733-2933.

**Q** About six months ago, I decided to buy a Commodore 1670 modem, but I haven't been able to find one anywhere. Can you tell me where to look?

—JUDAH HILL  
MESA, AZ

**A** The 1670 wasn't being marketed for a while, but many places have them now. Q-Link, for instance, is selling 1670s for \$79.95. I don't know if this is a fresh batch of modems or a bunch Commodore forgot about in their warehouse, but they're available.

**Q** Am I dreaming, or did I see a reference in your column to a user in Toronto who adapted her 1670 modem so it would work with an MS-DOS machine?

—DAVE FRASER  
ST. PETER'S, NOVA SCOTIA, CANADA

**A** The user, Jo-Anne Park, didn't do anything to her 1670. She built an interface that made her 1670 compatible with her Amiga, and the same could be done for an MS-DOS machine. LRA

Enterprises of 35615 Avenue D, Yucaipa, CA 92399, now markets such a device.

One of the reasons Jo-Anne decided to create her interface was that the people at Commodore told her it couldn't be done.

## BRADLEY BBS COMMANDMENT

If you call a BBS that you aren't likely to access again, leave a message telling the SYSOP you won't be back, so he or she can delete you from the user file. Most systems are limited to a certain number of users, and deleting your name will free up disk space for someone else. ■

Telecomputing Workshop is a monthly column dedicated to the needs of RUN readers who are using, or intend to use, a Commodore computer for telecommunications. We invite you to submit your questions and comments to:

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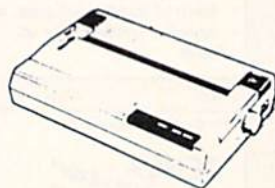
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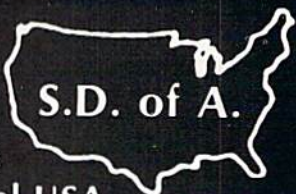
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# COMMODORE CLINIC

Learn how to program interrupts  
and how to read disk names.

By LOU WALLACE

## PROGRAMMING

**Q** I've written a C-128 program that needs to know the name of the 1571 disk so it will be able to print out the disk name, along with other data, to the printer. The trouble is, I can't figure out how to do it! Any ideas?

—JOHN SCHUELER  
SEDONA, AZ

**A** It's quite easy, and there are a number of ways to do it. The easiest is to open a channel to the drive and read the directory, just as you would a program. Here's a short Basic program that reads the disk name into a variable. With a little more work, it could probably be used to read the entire disk directory, along with all the file types and file sizes.

```
10 REM READ A DISK NAME
20 OPEN 1,8,0,"$"
30 FOR I=0 TO 24
40 GET#1,A$:IF A$="" THEN A$=
  CHR$(0)
50 D$=D$+A$:NEXT
60 CLOSE 1
70 D$+MID$(D$,9,16)
80 PRINT D$
```

This works on any 1541, 1571 or 1581 drive. It reads in enough information to get just the disk name, then, using the MID\$ function, it makes D\$ equal to the data that's found between the double quotes at the top of your disk directory. This is the disk name, and it's always 16 characters long.

**Q** What is the purpose of the REM\* statements at the end of each line of code in programs listed in RUN?

—Y. RUBINSON  
DES PLAINES, IL

**A** They're used with RUN's Checksum program, which catches errors you may type into a listing. Those REM\* statements are followed by a number, called a checksum. Don't type

in the REM\* or the number that follows. Instead, when you have the Checksum program installed in memory and type in a program line, a number is printed to the screen. If the number matches the number following the REM\*, you've correctly entered that line; if not, there's an error in the line that needs correcting. The Checksum program replaced our old Perfect Typist program in January 1988. It and the instructions for using it appear in every issue.

**Q** I have a C-128, 1541 and Okidata 120 printer. I'm pretty new to computing, and I can't figure out how to list a Basic 7.0 program to my printer. I've tried the Open command, but it isn't working quite right. What I need is explicit instructions!

—G. STOJHOVIC III  
PHOENIX, AZ

**A** As Alf would say, "No problem!" All you need to do is load the Basic program, then, with your printer on, type the following in Direct mode. (Direct mode means just type it and press return.)

```
OPEN 4,4,7:CMD 4:LIST:PRINT#4:CLOSE 4
```

Your program will be printed on your printer, just as it appears on the screen. The only exceptions will be Quote-mode commands, which, depending on your printer's interface, will be translated into either ASCII sequences or graphics characters.

**Q** When I'm creating high-resolution graphics on my C-64, I have a problem positioning pixels of different colors next to each other—the first colored dot changes to the new color! Why does that happen, and what can I do about it?

—LEE RUMSEY  
LONG BEACH, CA

**A** The problem you're experiencing is known as "color bleed." The way C-64 (and C-128) graphics are generated

by the VIC chip allows two colors per color cell, one foreground and one background color. The color cell is an 8×8-pixel matrix. So, any attempt to change even one dot within the 8×8 area results in all foreground pixels (or all background pixels, depending on which color you're using) changing to the current color. There's nothing you can do about it when using the hi-res 320×200 Graphics mode.

If you use Multicolor Graphics mode, you can have up to four different colors per cell, but there are also some drawbacks to using this mode. The screen resolution reduces to 160×200, giving a coarser display, and the color cell becomes horizontally smaller—a 4×8-pixel matrix. Each pixel has twice the width as in Hi-Res mode.

**Q** I was intrigued by your numeric format program in the March 1988 Commodore Clinic. I've made some enhancements to it and corrected a couple of minor bugs that were due to the math bug you described. The result is an improved version you might be interested in passing on to your readers.

```
10 PRINT "X = ";INPUT Y
20 GOSUB 50
30 PRINT Y,X$
40 GOTO 10
50 X=Y*100:X=INT(X+.0001):X=X/100
60 X$=STR$(X):T=X-INT(X):IF T=0
  THEN X$=X$+".00":GOTO 80
70 V$=STR$(INT(X*10+0)):U=
  VAL(V$):S$=STR$(X*10):R=VAL(S$)
75 Z=R-U:IF Z=0 THEN X$+X$+"0"
80 FOR J=1 TO (10-LEN(X$)):X$=" "+
  X$:NEXT
90 RETURN
```

—HERBERT WALLER  
HICKSVILLE, NY

**A** Thanks, Herb. The original formatting program generated quite a few letters, and a number of readers sent along their own versions. Evidently a good many have also been experimenting with the math bug. If anyone solves the math-bug problem, drop us a line.

## SOFTWARE

**Q** I've been using the HesWare Omnivriter program without a problem for the past few years, but it's occurred to me that perhaps I should get a backup of the program. I've tried contacting the company without success. Can you tell me how to reach them?

—MORTON DIVACK  
JACKSON HEIGHTS, NY

**A** HesWare (Human Engineered Software) has been out of business for some time, so you won't be able to buy a backup from them. However, since you are a legitimate owner of an original disk, you have the right to make one backup copy for your own use. The Omnivriter disk is copy-protected, so you'll need a copy program that can make a backup of copy-protected software.

**Q** I have a C-64/1541 system and just recently added a 1581 as a second drive. Do I need a special copier to back up my 1541 disks to the 1581 format?

—D. JOHNSON  
LOS ANGELES, CA

**A** The 1581 places the directory in a different location than the 1541 (and 1571), so you can't use a whole-disk backup program to copy your 1541 disks. You need a program that copies the disk file by file, and a good one that's simple to use is Jim Butterfield's Copy/All 64. This program should already be on your 1541 Test Demo disk, as well as being available in every user's group library and on almost any BBS or computer network (GENie, Quantum-Link, CompuServe, etc.).

**Q** I do a lot of cooking, and I'm always coming across new recipes to try out. Before I write down another recipe and forget where I put it, I think this would be a good time to bring the trusty C-64 into the kitchen. My "C-64 dollar question": Is there a pro-

gram specifically written for the gourmet cook for filing recipes? Thanks for your help!

—C. SHAW  
DARIEN, CT

**A** I checked the back issues of *RUN* and, sure enough, in the July '87 News and New Products there was an entry for a program called The Recipe Filer and Serving Converter. This program lets you enter recipes, file them away for later recall, print them out on the screen or to a printer and even allows you to scale the amount of ingredients to fit the number of servings you need. It's available from Microcraft, 9245 Washington, Brookfield, IL 60513 for about \$10.

Incidentally, back when I was spending many hours every night trying to persuade my wife, Sharon, to let me buy a home computer, one of my regular arguments was that I would write just such a program for her. Since I never did, it looks like I'll have to send a check off for this one myself.

## HARDWARE

**Q** I have a C-64 and plan to upgrade to the C-128D. I've heard of the 1750 RAM expansion cartridge and am wondering if it works with the 128D. Also, does it work with GEOS, perhaps by allowing more of the program to remain in memory? If I get a 1581 drive, can I transfer my protected programs to it?

—ANN BRANSTETTER  
LAUREL, MT

**A** The 1750 adds an additional 512K of memory to the C-128, which is a really impressive upgrade. It does have its limits, though, because it doesn't directly increase the memory allowed for executable programs. Instead, it acts as a storage area for programs and data. However, because of its ability to make extremely high-speed direct memory transfers (DMAs) between the C-128 and the 1750, programs

and data can be loaded into the RAM expansion unit and then transferred into the computer when needed. The usefulness of this becomes evident when using GEOS, as it can practically eliminate the bothersome (and slow) disk accesses you normally encounter.

The 1581 drive can also be used with GEOS 128 (although, at this writing, not with GEOS 64), providing very high speed with 800K storage. You can't copy most protected programs to the 1581, because it's quite different from the 1541 and 1571, but unprotected programs usually work with the 1581, and many protected programs (like GEOS 128) can use it for data storage.

**Q** I've read that the empty ROM socket in the C-128 is mapped into memory locations \$8000-\$FFFF, and that memory expansion is in the same locations. I had planned on buying the Basic 8 ROM chip and the 1750 RAM expansion unit for use with Basic 8 and GEOS 128. Will the ROM interfere with the REU?

—F. KRANZ, JR.  
SEYMOUR, WI

**A** There's no conflict between the Basic 8 ROM chip and the 1750 REU. The ROM is unused and transparent unless installed into memory during system startup by holding down the control key. It works well with the 1750 REU, and, when not activated, doesn't interfere with any known software. ■

*Do you have a problem or question about your Commodore computer system, software or programming? Commodore Clinic can help. Just send your questions to:*

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*Queries are answered only through this column, and, due to the volume of mail, only questions likely to appeal to the majority of our readers can be published.*

# LEARN TO WALK BEFORE YOU RUN

WE RECEIVE MANY LETTERS from new Commodore owners who want to type in program listings from *RUN* and need help in getting started. To answer many of the questions novice users have, we present the following guidelines.

1. First, keep in mind that as a beginner you should enter only short Basic programs. Avoid machine language listings and lengthy Basic programs until you get the hang of what you're doing.
2. To help you catch mistakes in typing in listings, we publish *RUN*'s Checksum program elsewhere in this issue.
3. If you intend to save the program you're typing in on a brand new disk, you must format that disk. To do this, insert the disk in your drive and type:

```
OPEN15,8,15 <press return>  
PRINT#15,"N0:NAME,##" <press return>
```

The ## is a two-character identifier that can be any combination of letters or digits. NAME can be any title for the disk that you choose, as long as it's 16 characters or less.

After entering the above lines, wait for a few minutes while the disk spins inside the drive. When the disk stops, the formatting is done. Then type:

```
CLOSE15 <press return>
```

In 128 mode on a C-128, you can shorten this procedure by typing:

```
HEADER "NAME,##" <press return>
```

*Caution:* The formatting process erases any material already on the disk, so if you're formatting a used disk, make sure it doesn't contain any programs you want to keep. See item 11 below, on reading the disk directory, if you need to find out what's on the disk.

4. Before you start typing in a program listing, your computer's memory needs to be empty. To make sure it is, turn the computer off, wait a few seconds, and turn it on again.
5. As you type in the listing, remember to press the return key after typing each line. This enters the line into memory.
6. If you want to review what you've entered, type LIST and press the return key; all the lines you've entered will scroll by. You can slow the scrolling on the C-64 by holding down the control key, and on the C-128 by pressing the no-scroll key. To view certain specific lines, type LIST, followed by the line numbers you want; then press the return key. For example, LIST 10-50 displays lines 10 through 50, and LIST 20 displays only line 20.
7. If you find an error in a line, delete the incorrect characters with the insert-delete key, then retype that portion and press return to enter the new line in memory.

8. Be sure to save the program to disk fairly often during the typing process. Otherwise, you could lose all your work if a power glitch wipes out your computer's memory. To save a partial or complete Basic program listing, type:

```
SAVE "NAME",8 <press return>
```

In 128 mode on a C-128, you can press F5, type in NAME and press the return key. Here, NAME is the filename you want the program to have, not the disk name you used when formatting.

Each time you save a revised program to the same disk, you must change its filename, or a disk error will occur, even if only one character is changed. An easy way to vary the filename is by adding version numbers to the end of the basic name (Program.1 and Program.2, for example). The numbers will also tell you which version is the latest.

9. If you wish to erase (scratch) unwanted programs from a disk, type:

```
OPEN15,8,15 <press return>  
PRINT#15,"S0:filename" <press return and wait a few seconds>  
CLOSE15 <press return>
```

In 128 mode on a C-128, you can type:

```
SCRATCH "NAME" <press return>
```

*Be sure not to erase the final version!*

10. Always save the final version of a program to two disks, so you have a backup copy in case one of the disks gets damaged. When saving to two different disks, you can use the same program name in each case.

11. To view a complete list of the filenames on a disk (i.e., read the disk directory), type:

```
LOAD "$",8 <press return>  
LIST <press return>
```

In 128 mode on a C-128, you can just press F3.

12. When you know what program you want to load, next make sure you know *exactly* how its filename is spelled in the disk directory, including punctuation, special characters and spaces. A mistake in the filename will keep the load from working.

If the disk directory is still on the screen when you enter the Load command, you can refer to that for the spelling. If the directory will be gone from the screen by the time you enter the Load command, jot down the exact spelling of the filename for reference. Once you're sure of the filename, load the program by typing:

```
LOAD "NAME",8 <press return>
```

In 128 mode on a C-128, you can just press F2, type in the filename and press the return key.

13. After you've loaded the program, enter RUN to use it. ■

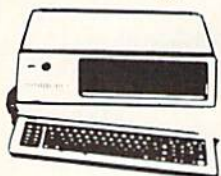


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# FORM WRITER

From p. 50.

```

180 PRINT" {4 SPACES} {SHFT J} {8
  SHFT *s} {COMD E} {21 SHFT *s
  } {SHFT K} {CTRL 1}":RETURN
  :REM*195
190 IN$="" :REM*75
200 PRINT" {COMD I} {CRSR LF}";:G
  OSUB100:A=ASC(A$):B=LEN(IN$
  ):IFA=13THENPRINT" {CRSR LF
  }":RETURN :REM*24
210 IFA=20THENIFBTHENPRINT" {2
  CRSR LFs}";:IN$=LEFT$(IN$,B
  -1):GOTO200 :REM*177
220 IF(A AND127)<32OR(B>IL)THEN
  200 :REM*252
230 PRINTA$;:IN$=IN$+A$:GOTO200
  :REM*79
240 IFDU%<7THENDU%=8 :REM*216
250 CLOSE15:OPEN15,DU%,15
  :REM*78
260 IF(C6)THENBANK0:GOSUB270:BA
  NK15:RETURN:REM C-128 ONLY!
  :REM*39
270 QX%=PEEK(SC+1023):RETURN
  :REM*239
280 GOSUB300:IF(E0)THEN410
  :REM*30
290 RETURN :REM*177
300 INPUT#15,E0,E1$,E2,E3:RETUR
  N :REM*81
310 HI=INT(QR/256):LO=QR-(HI*25
  6):RETURN :REM*125
320 POKE255,FF:IF(C6)THEN340
  :REM*66
330 A$=IN$:SYS49158:RETURN
  :REM*200
340 QR=POINTER(IN$):GOSUB310:PO
  KE254,HI:POKE253,LO:SYS4870
  :RETURN :REM*104
350 POKE255,DU% :REM*178
360 A$=IN$:SYS49170:GOTO280
  :REM*137
370 PRINT" {SHFT CLR} {2 CRSR DNs
  } FILENAME:" :REM*253
380 IL=16:GOSUB190:IFIN$=""THEN
  E0=1:RETURN :REM*12
390 IFIN$=""$"THENGOSUB1720:GOTO
  370 :REM*70
400 OPEN8,DU%,8,IN$+",S, "+TF$:G
  OTO280 :REM*12
410 PRINTJ$"DISK ERROR:"+STR$(
  E0)+", "+E1$+", "+STR$(E2)+
  ", "+STR$(E3):GOTO90:REM*31
420 GOSUB 440 :REM*246
430 A=NF%+1:DIM FF$(A),NF$(A),F
  T$(A),FL$(A),NP$(A),PC$(51)
  ,QS(51):RETURN :REM*172
440 IF(C6)THENPOKE51,PEEK(49):P
  OKE52,PEEK(50):RETURN
  :REM*245
450 POKE49,PEEK(47):POKE50,PEEK
  (48):RETURN :REM*190
460 GOSUB570 :REM*44
470 FORX=1TONP%:Y=NP%(X):PRINT
  NF$(Y)+" :"+FF$(Y):NEXTX:RE
  TURN :REM*179
480 TF$="R":GOSUB550:IF(E0)THEN
  540 :REM*78
490 PRINT:GOSUB460:CLOSE8:INPUT
  "{2 CRSR DNs} {CTRL 3} IS THI
  S IT? {CTRL 1} N {4 CRSR LFs
  }":A$:RETURN :REM*133
500 CLOSE8:OPEN8,DU%,8,"/"+DB$+
  ",S,R":GOSUB280:IFE0THENDB$
  ="":GOTO540 :REM*220
510 INPUT#8,NF%:INPUT#8,NP%:GOS
  UB430 :REM*147
520 FORX=0TONF%:INPUT#8,NF$(X):
  INPUT#8,FT$(X):INPUT#8,FL$(
  X):INPUT#8,NP%(X) :REM*168
530 NEXTX :REM*71
540 CLOSE8:RETURN :REM*200
550 PRINT" {SHFT CLR} {CTRL N} {2
  CRSR DNs} {CTRL 3} DOCUMENT N
  AME: {CTRL 1}";:GOTO380
  :REM*115
560 FORX=1TONP%:Y=NP%(X):PRINT#
  8,CHR$(34)+FF$(Y):NEXTX:RET
  URN :REM*153
570 FORX=1TONP%:Y=NP%(X):INPUT#
  8,FF$(Y):NEXTX:RETURN
  :REM*138
580 BLOAD(IN$),B0,U(DU%),P39936
  :BANK15:REM C-128 ONLY
  :REM*47
590 SYS(ML+15):NF%=PEEK(255):IF
  (NF%)THENNPF%=NF%-1 :REM*178
600 RETURN :REM*228
610 P$=CHR$(13)+" {8 SPACES}":GO
  SUB240:GOSUB120:PRINT" {HOME
  }":PRINT" {4 SPACES} {CRSR RT
  } {CTRL 9} {2 SPACES} FORM {2 S
  PACES} {CTRL 0} :REM*244
620 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} WRITER {CTRL 0}
  :REM*204
630 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {8 SPACES} {CTRL 0} {3
  CRSR RTs} {CTRL 3} {CTRL 9} {4
  SPACES} MAIN MENU {CTRL 1}
  :REM*101
640 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {3 SPACES} BY {3 SPACES
  } {CTRL 0} :REM*134
650 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} T. BROWN {CTRL 0} {2 CR
  SR DNs}" :REM*79
660 PRINTP$" < 1 > {2 SPACES} = {2
  SPACES} FORM EDITOR "P$" {CRSR
  DN} < 2 > {2 SPACES} = {2 SPAC
  Es} DATA BASE :REM*179
670 PRINTP$" < 3 > {2 SPACES} = {2
  SPACES} PRINTER "P$" {CRSR DN}
  < 4 > {2 SPACES} = {2 SPACES} D
  ISK DRIVE :REM*146
680 FF=0:GOSUB100:ON(VAL(A$)) G
  OTO950,1040,710,860:REM*171
690 GOTO610 :REM*254
700 STOP :REM*79
710 GOSUB120:PRINT" {HOME}":PRIN
  T" {4 SPACES} {CRSR RT} {CTRL
  9} {8 SPACES} {CTRL 0} :REM*6
720 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {CTRL 0} : {4 SPACES}
  {CTRL 9} {CTRL 0} :REM*107
730 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {CTRL 0} : {4 SPACES}
  {CTRL 9} {CTRL 0} {3 CRSR RT
  s} {CTRL 3} {CTRL 9} {2 SPACES
  } PRINTER {2 SPACES} MENU {CTRL
  1} :REM*97
740 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {COMD Q} {CTRL 0} {6 CO
  MD Os} {CTRL 9} {COMD W} {CTRL
  0} :REM*92
750 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {COMD Z} {6 SHFT *s} {C
  OMD X} {CTRL 0} {2 CRSR DNs}"
  :REM*58
760 IFDB$="" THEN840 :REM*200
770 GOSUB260:IF(QX%<123) THEN19
  00 :REM*93
780 PRINT" {CRSR DN} {CTRL 3} CURR
  ENT DBASE: {CTRL 5}"+DB$
  :REM*229
790 PRINTP$" {2 CRSR LFs} {CTRL 1
  } < 1 > {2 SPACES} = {2 SPACES}
  CHANGE DATA BASE "P$" {CRSR D
  N} {2 CRSR LFs} < 2 > {2 SPACE
  s} = {2 SPACES} LOAD A FORM
  :REM*219
800 PRINTP$" {2 CRSR LFs} < 3 > {2
  SPACES} = {2 SPACES} FILL FRO
  M DATA BASE "P$" {CRSR DN} {2
  CRSR LFs} < 4 > {2 SPACES} = {2
  SPACES} FILL FROM KEYBOARD
  :REM*78
810 PRINTP$" {2 CRSR LFs} < 5 > {2
  SPACES} = {2 SPACES} PRINT A
  BLANK FORM "P$" {CRSR DN} {2 C
  RSR LFs} < 6 > {2 SPACES} = {2
  SPACES} SET PRINTER CODES
  :REM*89
820 GOSUB100:ON(VAL(A$)) GOTO12
  70,1900,1280,1310,1320,1330
  :REM*23
830 GOTO610 :REM*131
840 GOSUB2350:IFDB$="" THEN610
  :REM*50
850 GOTO710 :REM*153
860 GOSUB120:PRINT" {HOME}":PRIN
  T" {4 SPACES} {CRSR RT} {CTRL
  9} {7 SPACES} {COMD D} {CTRL 0}
  :REM*89
870 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {3 SPACES} {SHFT U} {SH
  FT I} {3 SPACES} {CTRL 0}
  :REM*14
880 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {3 SPACES} {SHFT J} {SH
  FT K} {3 SPACES} {CTRL 0} {2 C
  RSR RTs} {CTRL 3} {CTRL 9} {2
  SPACES} DISK DRIVE MENU {2 SP
  ACES} {CTRL 0} {CTRL 1}
  :REM*85
890 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {3 SPACES} {CTRL 0} {CO
  MD K} {CTRL 9} {COMD K} {3 SPA
  CES} {CTRL 0} :REM*110
900 PRINT" {4 SPACES} {CRSR RT} {C
  TRL 9} {3 SPACES} {COMD C} {CO
  MD V} {3 SPACES} {CTRL 0} {2 C
  RSR DNs}" :REM*147
910 PRINTP$" < 1 > {2 SPACES} = {2
  SPACES} DIRECTORY "P$" {CRSR
  DN} < 2 > {2 SPACES} = {2 SPACE
  s} DOS COMMANDS" :REM*26
920 PRINTP$" < 3 > {2 SPACES} = {2
  
```

# FORM WRITER

```

SPACES}ERROR CHANNEL"          1110 PRINTP$"{CTRL 1}{CRSR DN}<
:REM*118                          1 >{2 SPACES}={2 SPACES}O
930 GOSUB100:ON(VAL(A$)) GOTO17  PEN A DATA BASE"P$"{CRSR D
10,1750,1780 :REM*235             N}< 2 >{2 SPACES}={2 SPACE
940 GOTO610 :REM*241             S}ADD A RECORD" :REM*250
950 GOSUB120:PRINT"{HOME}":PRIN 1120 PRINTP$"< 3 >{2 SPACES}={2
T"{4 SPACES}{CRSR RT}{CTRL      SPACES}DELETE A RECORD"P$
9){COMD A}{3 SHFT *s}{COMD      "{CRSR DN}< 4 >{2 SPACES}={
S}{2 SPACES}{CTRL 0}           {2 SPACES}CHANGE A RECORD"
:REM*139                          :REM*243
960 PRINT"{4 SPACES}{CRSR RT}{C 1130 PRINTP$"< 5 >{2 SPACES}={2
TRL 9){SHFT -}{3 SPACES}{C     SPACES}VIEW A RECORD"
OMD Q}{COMD S}{CTRL 0}         :REM*181
:REM*141                          1140 GOSUB100:ON(VAL(A$)) GOTO2
970 PRINT"{4 SPACES}{CRSR RT}{C  340,2390,2410,2430,2470
TRL 9){SHFT -}{3 SPACES}{2
SHFT -s}{CTRL 0}{2 CRSR R     :REM*235
Ts}{CTRL 3}{CTRL 9} FORM/FI    :REM*192
ELD EDITOR {CTRL 0}{CTRL 1}    :REM*109
" :REM*234                       1170 GOTO1040 :REM*202
980 PRINT"{4 SPACES}{CRSR RT}{C 1180 IL=2:PRINT"{SHFT CLR}{CTRL
TRL 9){COMD Z}{COMD R}{2 S     1}{2 CRSR DN}s)MONTH (1-12
HFT *s){COMD X}{SHFT -}{CT    ): " :REM*233
RL 0} :REM*194                   1190 GOSUB190:MO=VAL(IN$):IFMO<
990 PRINT"{4 SPACES}{CRSR RT}{C  1ORMO>12THENMO=1 :REM*133
TRL 9){2 SPACES}{COMD Z}{3
SHFT *s}{COMD X}{CTRL 0}{2   1200 PRINT"{2 CRSR DN}s)DAY (1-3
CRSR DN}s" :REM*12              1): " :GOSUB190:DA=VAL(IN$
1000 PRINTP$"< 1 >{2 SPACES}={2  ):IFDA<1ORDA>31THENDA=1
SPACES}CREATE NEW FORM"P$      :REM*38
"{CRSR DN}< 2 >{2 SPACES}=
{2 SPACES}EDIT OLD FORM"
:REM*195                          1210 POKE1021,MO:POKE1022,DA:DU
1010 PRINTP$"< 3 >{2 SPACES}={2  %=PEEK(186) :REM*73
SPACES}LOAD A FORM"P$"{CR     POKE787,123 :REM*73
SR DN}< 4 >{2 SPACES}={2 S
PACES}SAVE A FORM":REM*150
1020 FL=1:GOSUB100:ON(VAL(A$))  1230 IF(C6)THENBLOAD"EDITOR.128
GOTO1800,1810,1920,1870      ML",U(DU%):BANK15:GOTO20:
:REM*215                          REM C128 ONLY :REM*124
1030 GOTO610 :REM*72              1240 LOAD"EDITOR.64 ML",DU%,1
1040 GOSUB120:PRINT"{HOME}":PRI  :REM*155
NT"{4 SPACES}{CRSR RT}{CTR    1250 DU%=PEEK(186):ML=49152:SC=
L 9){COMD A}{SHFT *}{COMD     39936:C6=PEEK(1023):IF(C6)
S}{5 SPACES}{CTRL 0}         THENML=4864 :REM*175
:REM*100                          1260 MO=PEEK(1021):DA=PEEK(1022
1050 PRINT"{4 SPACES}{CRSR RT}{  ):PD=4:PS=7:PT=5:J$=CHR$(1
CTRL 9){SHFT -}{COMD Q}{C     3):GOTO60 :REM*113
OMD S}{COMD A}{SHFT *}{CO     1270 GOSUB2350:GOTO710 :REM*162
MD S}{CTRL 0} :REM*102          1280 GOSUB480:IF(E0)OR(A$<"Y")
1060 PRINT"{4 SPACES}{CRSR RT}{  THEN1300 :REM*29
CTRL 9){COMD Z}{COMD R}{CO    1290 GOSUB2490:GOSUB2650:GOTO26
MD X){SHFT -}{LEFT ARROW}{   90 :REM*166
SHFT -}{SHFT W}{SHFT -}{CT   1300 CLOSE8:GOTO710 :REM*115
RL 0}{2 CRSR RTs}{CTRL 3}{   1310 PRINT"{SHFT CLR}{CTRL N}{C
CTRL 9}{3 SPACES}DATA BASE   TRL 9)FILL OUT FORM":GOSU
MENU{2 SPACES}{CTRL 0}{CT    B2280:GOSUB2490:GOSUB2650:
RL 1} :REM*140                  GOTO2690 :REM*108
1070 PRINT"{4 SPACES}{CRSR RT}{  1320 PRINT"{SHFT CLR}{CTRL N}PR
CTRL 9){COMD Z}{SHFT *}{C     INT A BLANK FORM":GOSUB263
OMD X){COMD Z}{COMD E}{CO    0:GOTO2690 :REM*237
MD X){CTRL 0} :REM*215          1330 GOSUB120:PRINT"{HOME}{CTRL
1080 PRINT"{4 SPACES}{CRSR RT}{  6}":PRINT"{4 SPACES}{CRSR
CTRL 9}{8 SPACES}{CTRL 0}{   RT){CTRL 9}{8 SPACES}{CTR
2 CRSR DN}s :REM*118            L 0} :REM*93
1090 IFDB$=""THEN1160 :REM*85    1340 PRINT"{4 SPACES}{CRSR RT}{
PRINT"{CRSR DN}{CTRL 3}CUR   CTRL 9){CTRL 0}{4 SPACES
RENT DBASE:{CTRL 5}"+DB$     }:{CTRL 9){CTRL 0}
:REM*154                          :REM*133
1100 PRINT"{CRSR DN}{CTRL 3}CUR  1350 PRINT"{4 SPACES}{CRSR RT}{
RENT DBASE:{CTRL 5}"+DB$     CTRL 9){CTRL 0}{4 SPACES
:REM*154                          }:{CTRL 9){CTRL 0}{3 CRSR
RTs}{CTRL 3}{CTRL 9}{3 SP
ACES}SET PRINTER {CTRL 6}

```

# FORM WRITER

```

UPERSCRIPT ITALIC :REM*213
1630 Q$(9)=Q$(4)+Q$(5):F$(9)="S 1930 GOTO610 :REM*214 +",S,W":GOSUB280:IFE0THENG
UBSCRIPT ITALIC" :REM*160 1940 PRINT"(SHFT CLR){2 CRSR DN :REM*219 OSUB410:GOTO2220 :REM*90
1640 PRINT"{2 CRSR DN$}SELECT F 2240 PRINT#8,NF$:PRINT#8,NP% :REM*225
ONT CHANGES FOR EACH LINE. :REM*195 1950 CLOSE:OPEN8,DU%,8,IN$+" ,P 2250 FORX=0TONF$:PRINT#8,NF$(X)
" :REM*195 1950 CLOSE:OPEN8,DU%,8,IN$+" ,P :PRINT#8,FT$(X):PRINT#8,FL
1650 A$="" :REM*73 ,R":GOSUB280:CLOSE8:IFE0TH :PRINT#8,NP$(X):REM*45
1660 INPUT"{3 CRSR DN$}{CTRL 3} ENRETURN :REM*68 2260 NEXTX:CLOSE8 :REM*66
LINE # 1-50 <{CTRL 6}CR=EX 1960 NF%=0:IF(C6)THEN 500 2270 GOTO950 :REM*51
IT{CTRL 3}>{CTRL 1}";A$:A :REM*152 2280 FORX=1TONP$:Y=NP$(X)
=VAL(A$):IF(A<1)OR(A>50)TH 1970 POKE787,234:LOAD(IN$),DU%, :REM*250
EN1330 :REM*82 1 1970 IL=FL$(Y):PRINT :REM*158
1670 A=A-1 :REM*131 1980 GOSUB590:GOTO610 :REM*59 2300 PRINT"{CRSR DN}"NF$(Y)+" :
1680 PRINT:FORX=0TO9:PRINTSTR$( 1990 PRINT"{2 CRSR DN$}FORM NAM :REM*186
X)+" = "+F$(X):NEXT :REM*255 "=""THENRETURN :REM*255 :REM*196
:REM*119 2000 IFIN$="$"THENGOSUB1720:GOT 2310 IF FF$(Y)=""THENFF$(Y)=""
1690 INPUT"{CRSR DN}{CTRL 7}FON 2010 O1990 :REM*102 :REM*196
T # <{CTRL 6}CR = NORMAL(C :REM*96 2320 NEXTX:RETURN :REM*37
TRL 3)>{CTRL 1}";A$:B=VAL :REM*56 2330 : :REM*93
(A$):IFB<1ORB>9THENB=0 :REM*4 2340 GOSUB2350:GOTO1040:REM*197
:REM*233 2020 NP%=0:FORFF=0TONF% :REM*4 2350 PRINT"{5 CRSR DN$}NAME OF
1700 FC$(A)=Q$(B):GOTO1650 2040 LI=PEEK(SC+FF):CO=PEEK(SC+ :REM*168 DATABASE: ";:IL=15:GOSUB19
:REM*118 256+FF):FL$(FF)=(PEEK(SC+5 :REM*33
1710 GOSUB1720:GOTO860 :REM*143 12+FF))+1 :REM*168 0:IFIN$=""THENRETURN
1720 PRINT"{SHFT CLR}{2 CRSR DN :REM*33
S}{CTRL 3}DIRECTORY{CTRL 1 :REM*29
S}{2 CRSR DN$}":CLOSE1:OPEN :REM*232 2370 IFIN$="$"THENGOSUB1720:GOT
1,DU%,0,"$0":GOSUB280:IFE0 :REM*179 O2350 :REM*150
THEN1740 :REM*225 2060 PRINT"FIELD LENGTH:"+STR$( :REM*150
1730 SYS(ML+21) :REM*244 FL$(FF)) :REM*102 2380 DB$=IN$:GOTO500
1740 CLOSE1:GOTO90 :REM*209 2070 PRINT"{2 CRSR DN$}NAME FOR :REM*150
1750 PRINT"{SHFT CLR}{2 CRSR DN :REM*26 2390 PRINT"{SHFT CLR}{CTRL N}{C
S}{CTRL 3}DISK COMMAND:(CT :REM*250 :REM*107 RSR DN)ADD A DOCUMENT{2 CR
RL 1}";:IL=32:GOSUB190:IF :REM*81 2400 CLOSE8:GOTO1040 :REM*81
IN$=""THEN860 :REM*86 2410 PRINT"{SHFT CLR}{CTRL N}{C
1760 A=VAL(IN$):IF(A>7)THEN DU% :REM*111 2410 PRINT"{SHFT CLR}{CTRL N}{C
=A:GOSUB240:GOTO860 :REM*47 )OR(A$<>"Y")THEN1040
:REM*248 :REM*189 2420 PRINT"{CRSR DN}OK"J$"DELET
1770 GOSUB240:PRINT#15,IN$ 2100 PRINT"3 = SUM3"J$"4 = TOTA :REM*105
:REM*66 L1"J$"5 = TOTAL2"J$"6 = TO :REM*189
1780 GOSUB280:IF(E0=0)THENGOSUB :REM*57 TAL3"J$"7 = GRAND "; :REM*189
410 :REM*57 2420 PRINT"{CRSR DN}OK"J$"DELET
1790 GOTO860 :REM*80 2110 PRINT"TOTAL"J$"8 = KEYBOAR :REM*105
1800 GOSUB80:PRINT"{CTRL N}";:S :REM*93 ING: "+IN$:PRINT#15,"S0:"+
1810 GOSUB80:PRINT"{CTRL N}";:S :REM*56 VAL(A$):IFA>9THENA=0 :REM*105
YS(ML+3) :REM*128 2120 FT$(FF)=A:PRINTA:IFA<4THEN :REM*86 2430 PRINT"{SHFT CLR}{CTRL N}{C
1820 NF%=PEEK(255):IFNF%<1THEN9 :REM*93 NP%=NP%+1 :REM*56 RSR DN)EDIT A DOCUMENT{2 C
50 :REM*150 2130 NEXTFF :REM*56 RSR DN$}":GOSUB480:IF(E0)O
1830 NF%=NF%-1 :REM*99 2140 NP%=0:FORX=0TONF%:IFFT$(X) :REM*170 R(A$<>"Y")THEN1040:REM*170
1840 POKE(SC+1023),123 :REM*67 <4THENNPNP%=NP%+1 :REM*163 2440 NI$=IN$:GOSUB2280:TF$="W":
1850 DB$="":PRINT"{SHFT CLR}{2 :REM*145 :REM*199 IN$=NI$:PRINT#15,"S0:"+IN$
CRSR DN$}YOU HAVE CREATED" :REM*49 2450 GOSUB400:IF(E0=0)THENGOSUB :REM*99
+STR$(NF%+1)+" FIELDS" :REM*62 2460 CLOSE8:GOTO1040 :REM*206 :REM*206
:REM*62 2470 PRINT"{SHFT CLR}{CTRL N}{C
1860 PRINT"DEFINE THEM NOW? Y/N :REM*55 RSR DN)VIEW A DOCUMENT{2 C
":GOSUB100:ON((A$="Y")+2)G :REM*76 RSR DN$}"A$="Y":GOSUB480:I
OTO2020,950 :REM*164 2180 IL=3:GOSUB190:A=VAL(IN$):I :REM*104
FA$<>"N"THEN1040 :REM*104
1870 PRINT"{SHFT CLR}{2 CRSR DN :REM*92 2480 GOTO2470 :REM*8
S}SAVE A FORM":GOSUB1990:I :REM*114 2490 T1=0:T2=0:T3=0:FORX=0TONF%
FIN$=""THEN950 :REM*55 2200 NEXTFF :REM*177 :REM*177
1880 IF(C6)THEN BSAVE(IN$),B0,U :REM*114 2500 IFFT$(X)=1THENT1=T1+VAL(FF :REM*129
DATABASE: ":IL=15:GOSUB19 :REM*108 $$(X)) :REM*108
1890 GOSUB350:GOTO950 :REM*225 2220 DB$=IN$:PRINT"INSERT DISK :REM*58
2510 IFFT$(X)=2THENT2=T2+VAL(FF
1900 GOSUB1940:IFIN$<>" ""THEN710 :REM*144 2520 IFFT$(X)=3THENT3=T3+VAL(FF :REM*108
$$(X)) :REM*58
1910 GOTO610 :REM*183 2230 CLOSE8:OPEN8,DU%,8,""/+DB$ :REM*31
1920 GOSUB1940:IFIN$<>" ""THEN950

```

# FORM WRITER

```

2540 FORTY=0TONF%      :REM*25    2630 A$=".....":      :REM*52
2550 IFFT%(Y)=4THENFF$(Y)=STR$(  A$=A$+A$+A$+A$      :REM*150  2710 PRINT"{2 CRSR DNs}{CTRL 7}
      T1)                :REM*29    2640 FORX=0TONF%:FF$(X)=LEFT$(A  PRINT TO LINE#:(CTRL 1) ";
      T2)                :REM*53    $,(FL%(X))):NEXT:RETURN      :IL=2      :REM*18
2560 IFFT%(Y)=5THENFF$(Y)=STR$(  :REM*73    2720 GOSUB190:L=VAL(IN$):IF(L<1
      T3)                :REM*205   A$="{20 SPACES}":A$=A$+A$+  ) OR (L>49)THENL=49
      T4)                :REM*126   A$+A$      :REM*248
2570 IFFT%(Y)=6THENFF$(Y)=STR$(  2660 FORX=0TONF%:A=LEN(FF$(X)):  2730 FORX=0TOL:PRINT#4,J$;:PRIN
      T1+T2+T3)          :REM*69   B=FL%(X)      :REM*82   T#5,Q$(0)+FC$(X); :REM*164
2580 IFFT%(Y)=7THENFF$(Y)=STR$(  2670 IF(A<B)THENFF$(X)=FF$(X)+R  2740 POKE255,(X):SYS(ML+12):NEX
      T1+T2+T3)          :REM*69   IGH$(A$, (B-A)) :REM*148   T:CLOSE4:CLOSE5 :REM*54
2590 IFFT%(Y)=8THENPRINTNF$(Y)+  2680 NEXT:RETURN      :REM*21   2750 INPUT"{2 CRSR DNs}PRINT AG
      ": ;:IL=FL%(Y):GOSUB190:F  2690 SYS(ML+9):FORFF=0TONF%:IN$  AIN(2 SPACES)N {4 CRSR LFs
      F$(Y)=IN$         :REM*105   =FF$(FF):GOSUB320:NEXT      }";A$:IFA$="Y"THEN2700
      MO)+" /"+STR$(DA) :REM*28   :REM*100
2600 IFFT%(Y)=9THENFF$(Y)=STR$(  :REM*100
      MO)+" /"+STR$(DA) :REM*28
2610 NEXTY              :REM*109
2620 RETURN             :REM*192    2700 OPEN4,PD,PS:OPEN5,PD,PT    2760 GOTO710      :REM*31

```

## Listing 2. Editor-file writer for the C-64.

```

0 REM CREATE EDITOR.64 ML FOR F  0BAFFA5B3A6FDA4FE20 BDFFA9F  08D27C08D29C0      :REM*242
ORM WRITER                      :REM*125  BA200A0B020D8      :REM*91    120 DATA 8D2BC08D2CC0203AC420 A
5 OPEN 8,8,8,"EDITOR.64 ML,P,W"  104 DATA FFA5010901850160A501  EC0AD29C020FAC42024 C420EBC
      :REM*170        9FE850160A20120C6FF 20E4FF2  1482029C468C9      :REM*108
10 READ A$:IF A$="-1" THEN CLOS  0E4FFAD8D02D0      :REM*178  121 DATA 85D0034CD7C2C91BF0F9 C
E8:END                          :REM*78    105 DATA FB20A3CF01EA90D20D2 F  90DD0034C9EC1C993D0 034CF1C
15 IF LEN(A$)<62 THEN 55         :REM*254   F20E4FFAA20E4FF20CD BDA9202  1C913D0034C2B      :REM*131
      :REM*254        0D2FF20E4FFF0      :REM*242  122 DATA C2C909D00620B6C24C3E C
20 B$=MID$(A$,1,20)+MID$(A$,22,  106 DATA DD20D2FFD0F6A90120C3 F  2C911D0034CB0C1C91D D0034CE
      20)+MID$(A$,43,20) :REM*242   F20CCFF6020E4FF85FF 20E4FF0  AC0C991D0034C      :REM*101
25 FOR I=1 TO 30                :REM*181   5FF60AD29C020      :REM*152  123 DATA 34C1C99DD0034C10C1C9 1
30 C$=MID$(B$, (I*2)-1,2):H$=LEF  107 DATA D6C18CE7C08DE8C0 A000B9D  4D0034C58C1C994D003 4C79C12
      T$(C$,1):L$=RIGHT$(C$,1)  6CF0008098099      :REM*4    0AFC24CEAC0AC      :REM*195
      :REM*209        108 DATA C007C8D0F3600C090E05 3  2AD8D02C902F00920F0 C0CEB5C
35 H=VAL(H$):IF H$>"9" THEN H=A  A20303020030F0C150D 0E3A203  2D0F8602016C1      :REM*214
      SC(H$)-55       :REM*85    0300020F0C04C      :REM*246  125 DATA CEB5C20DF8602060C0A9 0
40 L=VAL(L$):IF L$>"9" THEN L=A  109 DATA 3EC23820F0FFC027F009 A  085F82022C5930D0D7 7 4149542
      SC(L$)-55       :REM*136   91D20D2FFEE27C060AE 27C0E04  041204D4F4D45      :REM*238
45 BY=H*16+L:PRINT#8,CHR$(BY);  FD00160EE2BC0      :REM*26    126 DATA 4E542ED072454144494E 4
      :REM*67        110 DATA EE27C0602016C14C3EC2 3  72053435245454E2E2E 2E0D0D0
50 NEXT:GOTO 10                 :REM*115   820FF0FC000F009A9D 20D2FFC  0A90085FF858C      :REM*206
55 IF LEN(A$)<21 THEN B$=A$:GOT  E27C060AE27C0      :REM*107  127 DATA 20FAC4A000B1FBC95ED0 0
O 70                             :REM*184   3202BC3C8C05090F2E6 8CA58CC  3202BC3C8C05090F2E6 8CA58CC
60 IF LEN(A$)<42 THEN B$=LEFT$(  111 DATA D00160CE2BC0CE27C060 3  D25C090E4A6FF      :REM*12
      A$,20)+RIGHT$(A$, (LEN(A$)-2  E29C04C3EC2AE      :REM*111  128 DATA 4C59C0A58CA6FF9D009C 9
      1):GOTO 70      :REM*137   89D009DA200E8C8C050 900160B  89D009DA200E8C8C050 900160B
65 B$=LEFT$(A$,20)+MID$(A$,22,2  112 DATA 29C0D0034C3EC2CE2CC0 C  1FBC95ED0F38A      :REM*216
      0)+RIGHT$(A$,LEN(A$)-42)  E29C04C3EC22016C1AD 29C020F  1FBC95ED0F38A      :REM*216
      :REM*140        AC4AC27C0C8C0      :REM*193  129 DATA A6FF9D009EE8F00386FF 6
70 FOR I=1 TO LEN(B$)/2:REM*221  113 DATA 50F008B1FB8891FBC8D0 F  06868A5FF4C59C02060 C0A000A
75 C$=MID$(B$, (I*2)-1,2):H$=LEF  388A92091FB43EC2AD 27C0C94  90085FBA9A085      :REM*149
      T$(C$,1):L$=RIGHT$(C$,1)  FD0034C3EC2AD      :REM*187  130 DATA FCA90085FDA9B085FEB1 F
      :REM*140        114 DATA 29C020FAC4A04F88B1FB C  B91FDC8D0F9E6FCE6FE A5FCC9B
80 H=VAL(H$):IF H$>"9" THEN H=A  891FB88CC27C0D0F4A9 2091FB4  0D0EF4C59C020      :REM*208
      SC(H$)-55       :REM*56    C3EC23820F0FF      :REM*75    131 DATA 60C0A5FF20EEC4A20420 C
85 L=VAL(L$):IF L$>"9" THEN L=A  115 DATA A0001820F0FFA9008D27 C  9FFA000B1FBC95FF00F 20D2FFC
      SC(L$)-55       :REM*84    08D2BC03820F0FFEF 17 F00BA91  8C050D0F220C      :REM*13
90 BY=H*16+L:PRINT#8,CHR$(BY);  120D2FFEE29C0      :REM*164  132 DATA FF4C59C0008CA4C3A000 B
      :REM*148        116 DATA 4C3EC2AE29C0E031D003 4  919C0F00620D2FFC8D0 F5ACA4C
95 NEXT:GOTO 10                 :REM*160   C3EC2EE2CC0EE29C04C 3EC2A0F  34C99C3008DBB      :REM*122
100 REM C64 HEX DATA FOR FORM W  F38C8E90AB0FB      :REM*205  133 DATA C3296D0030A92060ADBB C
RITER                            :REM*45   117 DATA 690A1869304898186930 A  330062960C960F0120E BBC32A2
101 DATA 00C04CF8C14C24C24CEA C  8686020E4FFF0FB60AD 8D02C90  EBBC36A6EBBC3      :REM*52
      34C58C34C81C34CD4C2 4C2DC04  5D0332060C0A0      :REM*1    134 DATA 4EBBC3ADBBC360ADBBC3 2
      C67C000000000000 :REM*201   B8D0FBE6FCA6FCE0B0 D0F3AD2  95F18602060C0A6FFBD 009D48B
102 DATA 000000000000000000000  1D048A9018D21      :REM*50   D009C20EEC468      :REM*28
      000000000000A5FF48 2060C02  119 DATA D0A99320D2FF688D21D0 2  3C4A4B388B1FD91FB88 10F94C5
      013C4A99C85FC      :REM*57   060C0A9C085F8A91320 D2FFA90  9C0A000B14785      :REM*25
103 DATA A90085FB68AAA901A000 2

```

# FORM WRITER

```

136 DATA B3C8B14785FDC8B14785 F      5FC18A5FD6928      :REM*127      08EE7C4D00AA2008EE6 C4A2A08
E60A90085CC60A9FF85 CC6000A      140 DATA 85FD9002E6FECE2EC410 D      EE7C48DEAC4A9      :REM*24
90085FBA9B085      :REM*103      66020A2C44CD2C4A900 8DECC48      144 DATA 008DEBC48DE9C4A9508D E
8C4209CC4ADEAC485FB ADEBC48
137 DATA FC4C42C4A90085FBA9A0 8      DEDC4A211186E      :REM*86      5FC60488A4898      :REM*38
5FCAC2CC0F00F18A5FB 6D24C08
5FB9002E6FC88      :REM*129      4901318ADEAC46DECC4 8DECC4A      145 DATA 48A000BAFE0401D003FE 0
501BD040185C3BD0501 85C4B1C
138 DATA D0F1AD2BC01865FB85FB A      DEBC46DEDC48D      :REM*176      3F0052D2FF90      :REM*246
90065FC85FCA90085FD A90485F
EA9178D2EC4A0      :REM*196      146 DATA E468A868AA6860      :REM*65
139 DATA 27B1FB20BCC391FD8810 F      BC460000000000      :REM*253      147 DATA -1      :REM*1
618A5FB6D24C085FBA9 0065FC8
    
```

### Listing 3. Editor-file writer for the C-128.

```

10 REM C128 ML MAKER      :REM*247      C134C13153820      :REM*231      126 DATA A200E8C8C050900160B1 F
BC95ED0F38AA6FF9D00 9EE8F00
15 OPEN 8,8,8,"EDITOR.128 ML,P,      108 DATA F0FFC000F009A99D20D2 F      FCE271360AE2713D001 60CE2B1      386FF606686A5      :REM*58
W"      :REM*26      3CE2713603820      :REM*149      127 DATA FF4C3613202E13A000A9 0
085FBA9A085FCA90085 FDA9B08
20 FAST      :REM*93      109 DATA F0FFE000F00BA99120D2 F      FCE29134C1315AE2913 D0034C1      5FEB1FB91FDC8      :REM*62
25 READ A$:IF A$="-1" THEN CLOS      315CE2C13CE29      :REM*76      128 DATA D0F9E6FCE6FEA5FCC9B0 D
0EF4C3613202E13A5FF 20DB17A
E8:END      :REM*189      110 DATA 134C131520EC13AD2913 2      0E717AC2713C8C050F0 08B1FB8      20420C9FFA000      :REM*139
30 IF LEN(A$)<62 THEN 60      315CE2C13CE29      :REM*76      891FBC8D0F388      :REM*151      129 DATA B1FBC95FF00F20D2FFC8 C
050D0F220CCFF4C3613 008C781
35 B$=MID$(A$,1,20)+MID$(A$,22,      111 DATA A92091FB4C1315AD2713 C      94FD0034C1315AD2913 20E717A      04F88B1FBC891      :REM*12
0420C9FFA000      :REM*139      891FBC8D0F388      :REM*151      130 DATA 0620D2FFC8D0F5AC7816 4
C6D16008D8F162960D0 03A9206
40 N=LEN(B$)/2      :REM*33      112 DATA FB88CC2713D0F4A92091 F      B4C13153820F0FFA000 1820F0F      FA9008D27138D      :REM*239
0AD8F16300629      :REM*178
45 FOR I=1 TO N      :REM*43      113 DATA 2B133820F0FFE017F00B A      91120D2FFEE29134C13 15AE291      3E031D0034C13      :REM*108
131 DATA 60C960F0120E8F162A2E 8      F166A6E8F164E8F16AD 8F1660A
50 H$=MID$(B$,I*2-1,2):H=DEC(H$      )      :REM*217      114 DATA 15EE2C13EE29134C1315 A      0FF38C8E90AB0FB690A 1869304      898186930A868      :REM*218
132 DATA 202E13A6FFBD009D48BD 0
55 PRINT#8,CHR$(H);:NEXT:GOTO 2      5      :REM*217      115 DATA 6020E4FFF0FB6A5D3C9 0      9D033202E13A00084FB A9A085F      CA92091FBC8D0      :REM*7
09C20DB17681865FB90 02E6FC8
60 IF LEN(A$)<20 THEN B$=A$:GOT      O 75      :REM*229      116 DATA FBE6FCA6FCE0B0D0F3AD 2      1D048A9018D21D0A993 20D2FF6      88D21D0202E13      :REM*255
5FB20ED16A000      :REM*49
65 IF LEN(A$)<42 THEN B$=MID$(A      $,1,20)+MID$(A$,22,(LEN(A$)-      21)):GOTO 75      :REM*167      117 DATA A9C085F8A91320D2FFA9 0      08D27138D29138D2B13 8D2C132      02717208413AD      :REM*116
133 DATA A201A9FD2074FF91FBC8 C
70 B$=MID$(A$,1,20)+MID$(A$,22,      20)+MID$(A$,43,LEN(A$)-42)      :REM*95      118 DATA 291320E717200F1720C1 1      44820151768C985D003 4CA815C      91BF0F9C90DD0      :REM*50
134 DATA 01A9FD2074FF48C8A201 A
75 N=LEN(B$)/2      :REM*94      119 DATA 034C7414C993D0034CC7 1      4C913D0034C0015C909 D006208      B154C1315C911      :REM*181
135 DATA 270A6000A90085FBA9B0 8
80 FOR I=1 TO N      :REM*76      120 DATA D0034C8614C91DD0034C C      013C991D0034C0A14C9 9DD0034      CE613C914D003      :REM*127
136 DATA FB6D241385FB9002E6FC 8
85 H$=MID$(B$,I*2-1,2):H=DEC(H$      )      :REM*246      121 DATA 4C2E14C994D0034C4F14 2      084154CC013AC271391 FB6000A      9058D8A15A5D3      :REM*12
8D0F1AD2B131865FB85 FBA9006
90 PRINT#8,CHR$(H);:NEXT:GOTO 2      5      :REM*246      122 DATA C902F00920C613CE8A15 D      0F86020EC13CE8A15D0 F860202      E13A90085F820      :REM*15
5FC85FCA90085FBA9 085FCA
95 REM C128 HEX DATA FOR FORM W      RITER      :REM*11      123 DATA 7DFF930D0D7741495420 4      1204D4F4D454E542E0D 7245414      4494E47205343      :REM*72
137 DATA FDA900485FEA9178D1B17 A
100 DATA 00134CCD144CF9144CBE 1      64C2C164C55164CA815 4C2D134      C3E1300000000      :REM*84      124 DATA 5245454E2E2E2E0D0D00 A
90085FF858C20E717A0 00B1FBC
101 DATA 000000000000000005032 0      000000000000006048A9 0E8D00F      F686048A9008D      :REM*253      95ED00320FF15      :REM*136
143 DATA 0808D08080808080808080
102 DATA 00FF6860A20120C6FF20 E      4FF20E4FFA5D3D0FC20 7913F01      EA90D20D2FF20      :REM*7      125 DATA C8C05090F2E68CA58CCD 2
51390E4A5FF4C3613A5 8CA6FF9
103 DATA E4FFAA20E4FF2032EA9 2      020D2FF20E4FFF0DE20 D2FFD0F      6A90120C3FF20      :REM*63      D009C989D009D      :REM*39
144 DATA -1
104 DATA CCF6020E4FF85FF20E4 F      F05FF60AD291320AC14 8CB2138      DB313AD271320      :REM*187
141 DATA GDD4178DD81760000000 0
105 DATA AC148CBD138DBE13A000 B      9AC13F008098099C007 C8D0F36      00C090E053A20      :REM*190      417D00AA2008E      :REM*87
142 DATA D317A2A08ED4178DD717 A
106 DATA 303020030F0C150D0E3A 2      F030300020C6134C1315 3820F0F      FC027F009A910      :REM*236      08917ADD71785      :REM*200
143 DATA FBADD81785FC60      :REM*33
107 DATA 20D2FFEE271360AE2713 E      04FD00160EE2B13EE27 136020E      :REM*246
    
```

Finally, there's a beauty contest that any GEOS owner can win—provided you have the right tools. The GEOS Desktop Publishing Contest. All you need to win is your Commodore, your trusty GEOS applications (like geoWrite, geoPublish, Graphics Grabber, etc.) and your own imagination to win in any four categories and walk away with all kinds of prizes.

or 1750 RAM Expansion Module or 1351 Mouse

- Three month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Ten pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

all entries received. No disks will be returned, so be sure to make a copy of your entry before you submit it to the contest.

**6.** Deadline for entries is June 30, 1988. Mail entries to Berkeley Softworks, P.O. Box 1835, Berkeley, CA, 94701 Attn: GEOS Desktop Publishing Contest.

# STOP THE PRESS!

**The GEOS Desktop Publishing Contest: Over \$20,000 in cash and prizes!**

Including \$1,000 cash.

Just send us your best looking publication (designed using GEOS applications)—printed out and on disk—by June 30, 1988. There are four categories, each with a Laser Printer and Dot Matrix Printer winner (except for the Poster category, which is Laser Printer only). Which means that there are seven first prizes. Seven second prizes. And seven thirds.

And each prize consists of lots more prizes.

So boot up and get down to designing your best layout. Then send it in with the information required below. You could win fortune—and fame, because the winners will be printed on these very pages this Fall.

## Categories

**FLYER**—Any one-page advertisement, handbill or data sheet. Two divisions: Dot Matrix and Laser Printer.

**NEWSLETTER**—Two or more pages, including newsletters, brochures, reports. Two divisions: Dot Matrix and Laser Printer.

**POSTER**—One page, enlarged at least 200%. Laser Printer only.

**OPEN DESIGN**—Anything goes! No page limitation. Best use for desktop publishing. Two divisions: Dot Matrix and Laser Printer.

## Seven First Prizes!

- \$1,000 cash
- Publication of your entry in RUN Magazine
- Complete library of C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem, 1351 Mouse and your choice of a 1764 or 1750 RAM Expansion Module
- Six month subscription to Q-Link, the telecommunications service from Quantum Computer Services
- Twenty five pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

## Seven Second Prizes!

- Complete library of C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764

## Seven Third Prizes!

- Your choice of any five C64 or C128 GEOS applications from Berkeley Softworks
- Commodore peripherals: 1670 1200 Baud Modem and your choice of a 1764 or 1750 RAM Expansion Module or 1351 Mouse
- Three month subscription to Q-Link, the telecommunications service from Quantum Computer Services.
- Five pages of laser printed output from Laser Direct
- Twelve month subscription to RUN magazine

## Official Rules

**1.** Employees of Berkeley Softworks, Quantum Computer Services, Laser Direct, RUN Magazine, their advertising and promotional agencies and their immediate families are not eligible to enter the contest.

**2.** Each entry must be wholly the product of the developer in whose name the entry has been submitted. The entry may not have been published prior to this contest. Copyrighted images are ineligible.

**3.** Entries must be produced with GEOS or GEOS based applications (e.g. geoWrite, geoWrite Workshop, geoPaint, geoPublish, etc.).

**4.** Entries must be submitted in both printed output form (dot matrix or laser printed) and disk in 1541/1571 format. The following should be clearly marked on both the printout and the disk:

- A. Contestant's name, address and phone number
- B. Occupation (optional)
- C. The GEOS based application package(s) used to create the entry
- D. Intended use for the entry, if other than just for this contest (e.g. user newsletter, school, business, group etc.)

**5.** Entries become the property of Berkeley Softworks, which reserves the right to adapt, use or publish

**7.** Contestants may enter multiple categories, but may only submit one entry per category per division (e.g. one entry in the Flyer category, Dot Matrix division *and* one entry in the Flyer category, Laser Printer division). Regardless of the number of categories you enter, you will only be eligible to win one prize.

**8.** Final judging will be performed by the staff of RUN Magazine. The decisions of the judges are final in all respects. This includes decisions regarding creativity, similarity among entries and general suitability.

**9.** This contest is void where prohibited by law. All federal, state and local taxes are the sole responsibility of the winners.

## General Conditions

- Entries will be judged on creativity, originality, composition, layout, content and overall design.
- Make sure your mailer will protect your printout and disk from damage. Affix sufficient first class postage. Mail your printout, disk and official entry blank to the above address before the June 30, 1988, deadline.
- Winners will be announced by September, 1988.

PLEASE PRINT

Name \_\_\_\_\_

Phone \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Age \_\_\_\_\_

Occupation \_\_\_\_\_ (optional)

Signature \_\_\_\_\_

Parent's Signature \_\_\_\_\_

(if contestant is under 18)

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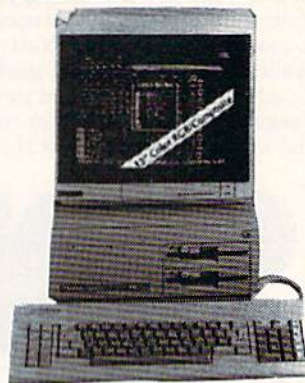
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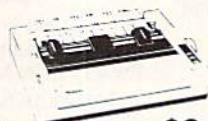
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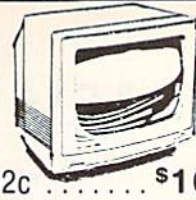
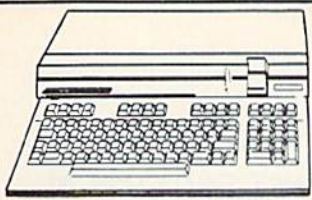
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# SPECIAL DELIVERY

From p. 58.

```

1010 IFAS="$Y"THENRUN :REM*230
1020 PRINT:PRINT"BYE":END :REM*173
1030 IFRM(0)<>12ANDRM(0)<>15THE :REM*245
NPRINT"WHE-E-E-E!!":GOTO5
50 :REM*245
1040 PRINT"{CRSR DN}YOU FLY INT :REM*57
O THE AIR AND LAND VERY HA :REM*128
RD ON ROCKS!!":GOTO420
1050 PRINT"YOU CAN'T.":GOTO550
1060 PRINT"GOD HELPS THOSE WHO :REM*148
HELP THEMSELVES.":GOTO550
1070 IFRM(0)<>17ANDRM(0)<>19AND :REM*137
RB(1)<>RM(0)THENPRINT"FEED :REM*219
WHAT?":GOTO550
1080 IFAB$(1)=""THENPRINTC$(3): :REM*51
GOTO550
1090 IFAB$(1)="DOG"GOTO1170
1100 IFAB$(1)="SNAKE"GOTO1220
1110 IFAB$(1)="RABBIT"GOTO1130 :REM*93
1120 PRINTC$(3):GOTO550 :REM*73
1130 IFRB(1)<>RM(0)THENPRINT"I :REM*219
SEE NO RABBIT.":GOTO590 :REM*36
1140 IFTH(9)<>22THENPRINTC$(7): :REM*146
GOTO550
1150 TH(9)=16:PRINT"THE RABBIT :REM*219
HOPS AWAY!":RB(0)=0:POKEV+ :REM*124
21,PEEK(V+21)AND(255-1)
1160 RB(1)=0:AV(0)=AV(0)-1:GOTO :REM*150
550
1170 IFRM(0)<>19THENPRINT"I SEE :REM*36
NO DOG HERE.":GOTO550
1180 IFTH(1)<>22THENPRINTC$(7): :REM*146
GOTO550
1190 IFRB(1)=19THENPRINT"THE DO :REM*176
G IS DISTRACTED BY THE RAB :REM*62
BIT.":GOTO550
1200 PRINT"THE DOG TAKES THE BO :REM*4
NE AND SLINKS AWAY.":TH(1) :REM*229
=0:TH(8)=0
1210 POKEV+21,PEEK(V+21)AND(255 :REM*128
-2):AV(0)=AV(0)-1:OB(0)=-O :REM*237
B(0):GOTO550
1220 IFRM(0)<>17THENPRINT"I SEE :REM*136
NO SNAKE!":GOTO550
1230 IFTH(4)<>22THENPRINTC$(7): :REM*94
GOTO550
1240 PRINT"THE SNAKE EATS THE M :REM*230
OUSE AND LEAVES.":TH(4)=0: :REM*199
TH(3)=0
1250 POKEV+21,PEEK(V+21)AND(255 :REM*214
-2):AV(0)=AV(0)-1:OB(1)=-O :REM*72
B(1):GOTO550
1260 IFTH(6)<>22THENPRINTC$(4): :REM*234
GOTO550
1270 IFAB$(1)<>"ROCK"ANDAB$(1)< :REM*136
>"THENPRINTC$(4):GOTO550
1280 IFRM(0)<>18GOTO1310:REM*30
1290 GOSUB2340:PRINT"THE BOOBY :REM*130
TRAP EXPLODES AND VANISHES :REM*234
!":TH(5)=0:OB(2)=-OB(2) :REM*31
:REM*130
1300 AV(0)=AV(0)-1:TH(6)=RM(0): :REM*166
GOTO550
1310 AV(0)=AV(0)-1 :REM*67
:REM*242
1320 IFRM(0)<>17THENPRINT"YOU T :REM*152
HROW THE ROCK.":TH(6)=RM(0) :REM*68
):GOTO550
1330 PRINT"THE SNAKE CRAWLS SLO :REM*238
WLY AWAY.":TH(6)=0:TH(3)=0 :REM*127
:OB(1)=-OB(1):GOTO550
1340 IFRM(0)<>20THENPRINTC$(3): :REM*38
GOTO550
1350 IFTH(11)<>22THENPRINT"YOU :REM*2
HAVE NO LETTER!":GOTO550
1360 PRINT"THE LETTER TEARS UP! :REM*14
!":REM*152
1370 TH(11)=0:GOTO550
1380 AV(RM(0)-1)=0:GOTO530
1390 PRINT"{SHFT CLR}":PRINT"YO :REM*14
U HAVE THESE THINGS:" :REM*14
:REM*14
1400 FORX=1TO11:IFTH(X)=22THENP :REM*14
RINTT$(X-1,1) :REM*64
1410 NEXT :REM*14
1420 INPUT"CRSR DN)PRESS RETUR :REM*14
N TO CONTINUE ";AS:GOTO530
1430 PRINT"SORRY YOU WANT TO QU :REM*14
IT.":REM*133
1440 GOTO990
1450 POKE53280,3:POKE53281,3:PR :REM*14
INT"{CTRL 1}":IFRM(0)>10TH :REM*190
ENX=RM(0)-10:GOTO1490
1460 X=RM(0) :REM*173
1470 ONXGOSUB1510,1520,1530,155 :REM*152
0,1560,1600,1630,1650,1670 :REM*80
,1680 :REM*80
1480 RETURN :REM*80
1490 ONXGOSUB1710,1730,1740,176 :REM*185
0,1780,1820,1850,1870,1920 :REM*108
,1990 :REM*108
1500 RETURN :REM*108
1510 PRINT"{SHFT CLR}{4 CRSR DN :REM*48
S}":PRINTPI$(1):PRINT"{HOM :REM*59
E}{9 CRSR DNS}"PI$(2):RETU :REM*43
RN :REM*49
1520 PRINT"{SHFT CLR}{7 CRSR DN :REM*43
S}":PRINTPI$(2):PRINT"{HOM :REM*43
E}{6 CRSR DNS}"PI$(0):RETU :REM*43
RN :REM*49
1530 PRINT"{SHFT CLR}{CRSR DN} :REM*199
:PRINT"{2 CRSR DNS}"PI$(0) :REM*199
:PRINT"{HOME}{4 CRSR DNS}" :REM*199
PI$(7) :REM*199
1540 PRINT"{HOME}{8 CRSR DNS}"P :REM*214
I$(5)"{HOME}{8 CRSR DNS}"P :REM*72
I$(4):RETURN :REM*214
1550 PRINT"{SHFT CLR}{4 CRSR DN :REM*72
S}"PI$(0):PRINT"{HOME}{6 C :REM*234
RSR DNS}"PI$(1):PRINT"{HOM :REM*234
E}{3 CRSR DNS}"PI$(7):RETU :REM*234
RN :REM*26
1560 PRINT"{SHFT CLR}{4 CRSR DN :REM*183
S}"PI$(0):PRINT"{HOME}{6 C :REM*182
RSR DNS}"PI$(1) :REM*182
:REM*182
1570 PRINT"{HOME}{10 CRSR DNS}" :REM*136
:REM*136
1580 PRINT"{4 CRSR RTs}&&&#&&& :REM*28
&&&&&&&&&&&&&&&&&&&&&&& :REM*136
&&":RETURN :REM*136
1590 PRINT"{SHFT CLR}{6 CRSR DN :REM*28
S}"PI$(0) :REM*28
1600 PRINT"{HOME}{12 CRSR DNS}{ :REM*239
COMD 4}"PI$(3):PRINT"{HOME :REM*88
}{6 CRSR DNS}"PI$(1) :REM*88
:REM*88
1610 PRINT"{HOME}{12 CRSR DNS}" :REM*115
PI$(6):RETURN :REM*115
1620 POKE53281,12:POKE53280,12 :REM*115
:REM*115
1630 PRINT"{SHFT CLR}{4 CRSR DN :REM*71
S}"PI$(0):PRINT"{HOME}{3 C :REM*71
RSR DNS}"PI$(7):PRINT"{HOM :REM*71
E}{7 CRSR DNS}"PI$(1):RETU :REM*71
RN :REM*71
1640 PRINT"{SHFT CLR}{2 CRSR DN :REM*115
S}"PI$(7):PRINT"{HOME}{7 C :REM*115
RSR DNS}"PI$(4) :REM*115
:REM*115
1650 PRINT"{HOME}{8 CRSR DNS}"P :REM*203
I$(1)"{HOME}{12 CRSR DNS}" :REM*203
PI$(6):RETURN :REM*203
1660 PRINT"{SHFT CLR}{13 CRSR D :REM*49
NS}{CTRL 6}"PI$(3)"{HOME}{ :REM*49
6 CRSR DNS}"PI$(0)"{HOME}{ :REM*49
7 CRSR DNS}"PI$(1):RETURN :REM*49
:REM*49
1670 PRINT"{SHFT CLR}{2 CRSR DN :REM*190
S}"PI$(1):PRINT"{HOME}{3 C :REM*190
RSR DNS}"PI$(7):PRINT"{HOM :REM*190
E}{7 CRSR DNS}"PI$(5) :REM*190
:REM*190
1680 PRINT"{COMD 1}*{5 CRSR RTs :REM*190
}*{9 CRSR RTs}" :REM*190
1690 PRINT"{2 CRSR RTs}*{16 CRS :REM*200
R RTs}*{2 CRSR RTs}*{CTRL :REM*200
1}":RETURN :REM*200
1700 PRINT"{SHFT CLR}{5 CRSR DN :REM*146
S}"PI$(0)"{HOME}{2 CRSR DN :REM*146
S}"PI$(7)"{HOME}{3 CRSR DN :REM*146
S}"PI$(1) :REM*146
:REM*146
1710 PRINT"{HOME}{6 CRSR DNS}"P :REM*48
I$(5):RETURN :REM*48
1720 PRINT"{SHFT CLR}{11 CRSR D :REM*43
NS}{CTRL 1}"PI$(3):PRINT"{ :REM*43
HOME}{5 CRSR DNS}"PI$(0)"{ :REM*43
HOME}{8 CRSR DNS}"PI$(1):R :REM*43
ETURN :REM*43
1730 PRINT"{SHFT CLR}{4 CRSR DN :REM*99
S}"PI$(1)"{HOME}{10 CRSR D :REM*99
NS}"PI$(4)"{HOME}{7 CRSR D :REM*99
NS}"PI$(5) :REM*99
:REM*99
1740 RETURN :REM*99
1750 PRINT"{SHFT CLR}{10 CRSR D :REM*234
NS}"PI$(4)"{HOME}{5 CRSR D :REM*234
NS}"PI$(7)"{HOME}{9 CRSR D :REM*234
NS}"PI$(1) :REM*234
:REM*234
1760 PRINT"{HOME}{10 CRSR DNS}" :REM*234
PI$(5)"{HOME}{12 CRSR DNS} :REM*234
"PI$(6):RETURN :REM*234
1770 PRINT"{SHFT CLR}{6 CRSR DN :REM*234
S}"PI$(0):PRINT"{HOME}{12 :REM*234
CRSR DNS}"PI$(1):PRINT"{HOM :REM*234
E}{3 CRSR DNS}"PI$(7):RETU :REM*234
RN :REM*26
1780 PRINT"{SHFT CLR}{6 CRSR DN

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# SPECIAL DELIVERY

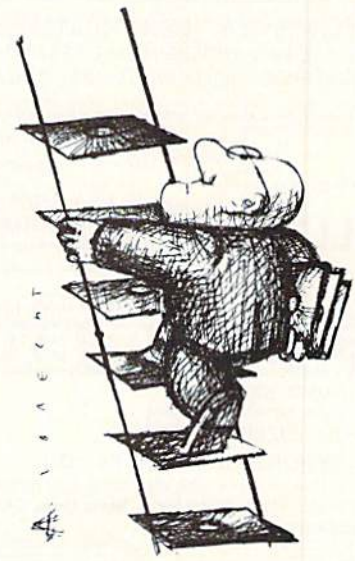
s)"PI\$(4)"(HOME){6 CRSR DN	COMD Us}{COMD 5}{3 COMD +	2320	POKES1,0	:REM*140
s)"PI\$(5)"(HOME){6 CRSR DN	s){CTRL 3}{2 COMD Us}{CTRL	2330	RETURN	:REM*161
s)"PI\$(6)	8){5 COMD +s){CTRL 3}{9 C	2340	FORX=0TO24:POKES5+X,0:NEXT	:REM*184
1790 PRINT"(HOME){8 CRSR DN}s){3	OMD Us}			:REM*170
9 COMD Is)"	2040 PRINT"{4 SPACES}{CTRL 3}{3	2350	FORX=15TO0STEP-1	:REM*191
1800 PRINT"{40 COMD +s)"	COMD Us}{COMD 5}{3 COMD +	2360	POKES1,X:POKES2,129:POKES3	:REM*81
	s){CTRL 3}{2 COMD Us}{CTRL		,15:POKES4,40:POKES5,200	
	8){5 COMD +s){CTRL 3}{9 C			:REM*188
1810 RETURN	OMD Us}	2370	NEXT:POKES2,128:POKES3,0	:REM*182
1820 PRINT"(SHFT CLR){13 CRSR D	2050 PRINT"{4 SPACES}{CTRL 3}{3	2380	POKE53280,1:POKE53281,1:FO	:REM*88
Ns){COMD 6}"PI\$(3):REM*111	COMD Us}{COMD 5}{3 COMD +		RZ=1TO100:NEXT:POKE53280,3	:REM*234
1830 PRINT"(HOME){6 CRSR DN}s)"P	s){CTRL 3}{2 COMD Us}{CTRL	2390	IFLL=1GOTO420	:REM*231
I\$(0)"(HOME){7 CRSR DN}s)"P	8){5 COMD +s){CTRL 3}{9 C	2400	RETURN	:REM*203
I\$(1)"(HOME){12 CRSR DN}s)"	OMD Us}	2410	POKE53281,3:POKE53280,3:PR	:REM*277
PI\$(4)	2060 PRINT"{4 SPACES}{CTRL 3}{8		INT"(SHFT CLR){CTRL 1}"	:REM*193
1840 PRINT"(HOME){12 CRSR DN}s){	COMD Us}{CTRL 8}{5 COMD +	2420	S1=54296:S2=54276:S3=54277	:REM*193
11 CRSR RTs){CTRL 3}*{6 CR	s){CTRL 3}{10 COMD Us}	2430	S4=54273:S5=54272:REM*193	:REM*226
SR RTs)*{CRSR RT}*{CTRL 1}	2080 PRINT"{4 SPACES}{CTRL 3}//	2440	FORX=0TO24:POKES5+X,0:NEXT	:REM*162
":RETURN	//////////			:REM*235
1850 PRINT"(SHFT CLR){2 CRSR DN		2450	DATA0,5,0,0,15,0,0,21,64,0	:REM*162
s)"PI\$(0)"(HOME){3 CRSR DN	2090 PRINT"(HOME){6 CRSR DN}s)"P		,15,0,0,15,0,0,13,0,0,1,0,0	:REM*235
s)"PI\$(7)"(HOME){7 CRSR DN	I\$(1)"(HOME){11 CRSR DN}s)"	2460	DATA2,145,240,0,133,192,8,	:REM*69
s)"PI\$(4)	PI\$(6)		133,40,34,134,130,4,134,16	:REM*233
1860 PRINT"(HOME){3 CRSR DN}s)"P	2100 RETURN		,17,44,68	:REM*128
I\$(1)"(HOME){8 CRSR DN}s)"P	2110 FORX=0TO24:POKES5+X,0:NEXT	2470	DATA68,125,1,64,65,17,17,0	:REM*121
I\$(6)"(HOME){6 CRSR DN}s)"P			,68,4,0,16,0,0,0,0,0	:REM*117
I\$(5):RETURN		2480	V=53248:FORX=0TO62:READZ:P	:REM*117
1870 PRINT"(SHFT CLR){6 CRSR DN	2120 POKES4,128:POKES3,219:POKE		OKE832+X,Z:NEXT	:REM*128
s)"	S5+15,28	2490	POKEV+39,2:POKEV+37,6:POKE	:REM*121
1880 PRINT"{6 SPACES}{5 COMD +s	2130 POKEV+40,9:POKEV+28,3:POKE		V+38,1	:REM*121
{12 SPACES}{4 COMD +s}	V+3,125:POKEV+2,175:REM*77	2500	POKEV+23,1:POKEV+28,1:POKE	:REM*121
	2140 FORZ=0TO63:POKE704+Z,SP(Z)		V+29,1	:REM*121
	:NEXT	2510	POKEV+16,1:POKEV,65:POKEV+	:REM*121
1890 PRINT"{5 SPACES}{6 COMD +s	2150 POKE2041,11		1,200	:REM*121
{12 SPACES}{5 COMD +s}	2160 POKEV+29,2:POKEV+23,2	2520	POKE2040,13	:REM*1
	:REM*7			:REM*1
1900 PRINT"{5 SPACES}{7 COMD +s	2170 POKEV+21,PEEK(V+21)OR2:M=1	2530	PRINT"{4 CRSR DN}s){4 CRSR	:REM*131
{10 SPACES}{6 COMD +s}	:POKES1,15		RTs)S P E C I A L{3 SPACES	:REM*66
	2180 FORZ=1TO3:POKES2,131:L=0:P	2540	}D E L I V E R Y"	:REM*64
	:REM*117		PRINT"{3 CRSR DN}s){12 CRSR	:REM*230
1910 PRINT"(HOME){10 CRSR DN}s){	2190 IFM=1THENM=0:L=1:FORX=0TO6		RTs)BY C. G. HURLEY"	:REM*230
CTRL 8)"PI\$(3):PRINT"{CTRL	2:POKE704+X,SP(63+X):NEXT	2550	PRINT"{6 CRSR DN}s){6 CRSR	:REM*119
1)"":RETURN	:REM*119		RTs){CTRL 9}PLEASE BE PATI	:REM*119
1920 PRINT"(SHFT CLR){4 CRSR DN	2200 IFL=0THENM=1:FORX=0TO62:PO	2560	ENT ONE MOMENT{CTRL 0}"	:REM*131
s)"	KE704+X,SP(X):NEXT:REM*206			:REM*66
1930 PRINT"{5 SPACES}{CTRL 3}{1	2210 POKES2,130:NEXT:POKES1,0:R	2570	POKEV+21,1	:REM*66
5 COMD +s}	ETURN		POKES4,254:POKES3,8:POKES5	:REM*214
	2220 FORX=0TO24:POKES5+X,0:NEXT	2580	+15,64:POKES1,15	:REM*214
1940 PRINT"{5 SPACES}{15 COMD +s}			FORX=64TO0STEP-4:POKEV,X:P	:REM*214
	2230 M=75	2590	OKES2,21:FORZ=1TO100:NEXT:	:REM*143
	:REM*234		POKES2,0	:REM*77
1950 PRINT"{5 SPACES}{6 COMD +s	2240 POKEV+2,M:POKEV+3,120	2600	NEXT:POKEV+16,0:FORX=254TO	:REM*44
{CTRL 8}{2 COMD +s){CTRL			2STEP-4:POKEV,X	:REM*44
3}{7 COMD +s}	2250 FORZ=0TO62:POKE704+Z,SP(12	2610	POKES2,21:FORZ=1TO100:NEXT	:REM*143
	6+Z):NEXT		:POKES2,0:NEXT	:REM*143
1960 PRINT"{5 SPACES}{6 COMD +s	2260 POKES4,40:POKES3,9:POKES5,	2620	POKES1,0:POKEV+21,0:POKEV+	:REM*152
{CTRL 8}{2 COMD +s){CTRL	200:POKE2041,11		29,0:POKEV+23,0	:REM*152
3}{7 COMD +s}	2270 POKEV+21,PEEK(V+21)OR2	2630	DIMRM(20),RM\$(19,1),TH(11)	:REM*224
	:REM*117		,TH\$(10,1),D(19,3),OB(2),D	:REM*224
1970 PRINT"{5 SPACES}{6 COMD +s	2280 FORX=1TO10:L=0:POKES2,129:		\$(3),AV(19)	:REM*224
{CTRL 8}{2 COMD +s){CTRL	POKES1,X:POKEV+2,M+X	2640	DIMW\$(43),CD(43),RB(1),NM(	:REM*31
3){7 COMD +s}			4),AB\$(1),C\$(10),P\$(50),PI	:REM*119
	2290 FORZ=1TO200:NEXT:POKES2,12		\$(7)	:REM*69
1980 PRINT"(HOME){4 CRSR DN}s)"P	8:FORZ=1TO100:NEXT	2650	DIM SP(314)	:REM*202
I\$(0)"(HOME){4 CRSR DN}s)"P	2300 NEXT			
I\$(7)"(HOME){9 CRSR DN}s)"P	2310 POKES2,128			
I\$(5):RETURN				
1990 PRINT"(SHFT CLR){4 CRSR DN				
s)"				
2000 PRINT"{4 SPACES}{CTRL 3}{2				
4 COMD Bs}				
2010 PRINT"{4 SPACES}{CTRL 3}{2				
4 COMD Rs}				
2020 PRINT"{4 SPACES}{CTRL 3}{2				
COMD Es){CTRL 1}MAIL(19 C				
OMD Es}				
2030 PRINT"{4 SPACES}{CTRL 3}{3				

# SPECIAL DELIVERY

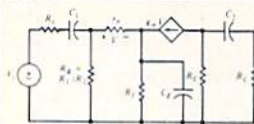
2640 D\$(0)="N":D\$(1)="E":D\$(2)="S":D\$(3)="W" :REM*69 2650 P\$="{HOME}{13 CRSR DNs}" :REM*203 2660 P1\$=P\$+"{8 CRSR DNs}" :REM*81 2670 S\$="{38 SPACES}" :REM*127 2680 S1\$=P1\$+"{2 CRSR DNs}"+S\$+"{CRSR UP}" :REM*48 2690 FORZ=0TO2:READOB(Z):NEXT :REM*213 2700 DATA019,2017,3318 :REM*94 2710 FORZ=1TO11:READTH(Z):NEXT :REM*78 2720 DATA15,12,17,4,18,6,20,19,16,9,22 :REM*71 2730 FORZ=0TO43:READW\$(Z),CD(Z):W\$(Z)=W\$(Z)+"{5 SPACES}":W\$(Z)=LEFT\$(W\$(Z),5):NEXT :REM*241 2740 DATABONE,1,BOOBY,5,CLIMB,120,CLOSE,200,COAT,2,DOG,8,DROP,140 :REM*223 2750 DATAE,111,EAST,111,FEED,210,FIGHT,150,FLOWE,9:REM*47 2760 DATAGATE,30,GET,130,HELP,270,I,250,INVEN,250,JUMP,180,KILL,150,KNOCK,170 :REM*54 2770 DATALETTE,11,LILY,10,LOOK,240,MAILB,7,MOUSE,4,MUSHR,30 :REM*34 2780 DATAN,110,NORTH,110,OPEN,190,PAD,10,PORCH,30,PUT,230,QUIT,260 :REM*239 2790 DATARABBI,30,RAIN,2,ROCK,6,S,112,SAVE,160,SLAKE,3,SO UTH,112 :REM*116 2800 DATATAKE,130,THROW,220,W,113,WEST,113 :REM*92 2810 FORZ=0TO19:FORX=0TO3:READD(Z,X):NEXT:NEXT :REM*133 2820 DATA,1,1,1,17,3,5,2,4,,3,,13,3,7,7,,8,5,6,,9,10,7,,8,12,,11,8 :REM*47 2830 DATA10,,,,,10,14,,5,15,13,,,,14,17,,,,18,16,2,,17,19 :REM*158 2840 DATA20,18,,,,,19,0:REM*136 2850 T\$(0,0)="YOU SEE AN OLD BONE.":T\$(0,1)="BONE :REM*12 2860 T\$(1,0)="A RAIN COAT IS NEARBY.":T\$(1,1)="RAIN COAT :REM*168 2870 T\$(2,0)="A SNAKE HISSES AT YOU FROM THE GROUND!" :REM*126 2880 T\$(3,0)="A SMALL MOUSE RUNS BY.":T\$(3,1)="MOUSE :REM*38 2890 T\$(4,0)="IT LOOKS LIKE A BOOBY-TRAP AHEAD!" :REM*78 2900 T\$(5,0)="YOU SPY A LARGE ROCK.":T\$(5,1)="ROCK:REM*27 2910 T\$(6,0)="AN OPEN MAILBOX IS HERE.":T\$(6,1)="MAILBOX :REM*148 2920 T\$(7,0)="A HUGE DOG STOMPS UP TO YOU!" :REM*255	2930 T\$(8,0)="YOU SEE A LOVELY FLOWER":T\$(8,1)="FLOWER :REM*174 2940 T\$(9,0)="A LILY PAD IS NEARBY.":T\$(9,1)="LILY PAD :REM*180 2950 T\$(10,0)="HERE IS A SOILED LETTER.":T\$(10,1)="LETTER :REM*4 2960 C\$(0)="THE DOG WON'T LET YOU GO PAST!" :REM*187 2970 C\$(1)="THE SNAKE HISSES AND BARES YOUR WAY!" :REM*7 2980 C\$(2)="THE BOOBY TRAP STOP S YOU!" :REM*225 2990 C\$(3)="I DON'T UNDERSTAND.":C\$(4)="YOU CAN'T DO THAT ." :REM*176 3000 C\$(5)="WHAT DO YOU MEAN?":C\$(6)="WHAT DID YOU SAY?":C\$(7)="WITH WHAT?":REM*237 3010 RM\$(0,0)="(CTRL 9)ROAD(CTRL 0)":RM\$(1,0)="(CTRL 9)1ST FORK":RM\$(2,0)="(CTRL 9)2ND FORK :REM*55 3020 RM\$(3,0)="(CTRL 9)MOSSY GLEN":RM\$(4,0)="(CTRL 9)3RD FORK":RM\$(5,0)="(CTRL 9)ROCKY GLEN :REM*193 3030 RM\$(6,0)="(CTRL 9)4TH FORK":RM\$(7,0)="(CTRL 9)5TH FORK":RM\$(8,0)="(CTRL 9)POND :REM*178 3040 RM\$(9,0)="(CTRL 9)6TH FORK":RM\$(10,0)="(CTRL 9)DEAD END":RM\$(11,0)="(CTRL 9)DEEP CAVE :REM*55 3050 RM\$(12,0)="(CTRL 9)7TH FORK":RM\$(13,0)="(CTRL 9)EAST-SOUTH BEND":RM\$(14,0)="(CTRL 9)ROCK CLIFF :REM*74 3060 RM\$(15,0)="(CTRL 9)MEADOW":RM\$(16,0)="(CTRL 9)WEST-NORTH BEND" :REM*181 3070 RM\$(17,0)="(CTRL 9)WEST-SOUTH BEND":RM\$(18,0)="(CTRL 9)YARD":RM\$(19,0)="(CTRL 9)PORCH :REM*254 3080 RM\$(0,1)="THE ROAD IS BORDERED BY A TALL FENCE{4 SPACES}IN FRONT OF TREES. :REM*44 3090 RM\$(1,1)="YOU ARE ON A NARROW PATH THROUGH TREES. A GATE IS HERE. :REM*26 3100 RM\$(2,1)="THE PATH IS VERY NARROW HERE AND THE{4 SPACES}TREES ARE DYING. :REM*58 3110 RM\$(3,1)="THIS SMALL AREA IS SURROUNDED BY TALL{3 SPACES}MOSS-COVERED TREES. :REM*187 3120 RM\$(4,1)="VINES COVER THE PATH HERE, MAKING IT{4 SPACES}HARD TO WALK. :REM*241 3130 RM\$(5,1)="YOU STAND ON BARRE ROCK IN A SMALL AREA{2 SPACES}AMONG GIANT TREES.	:REM*111 3140 RM\$(6,1)="IT IS SO DARK HERE AMONG THE TREES THAT YOU HAVE TROUBLE SEEING. :REM*195 3150 RM\$(7,1)="THE GROUND IS UNEVEN HERE, DIPPING AND{2 SPACES}RISING IRRATICALLY. :REM*15 3160 RM\$(8,1)="A GREEN POND IS HERE. THE AIR IS THICK{2 SPACES}WITH THE SMELL OF DECAY. :REM*130 3170 RM\$(9,1)="THE PATH IS DOTTED WITH MUSHROOMS AND{3 SPACES}BRIGHT ORANGE MOLD. :REM*22 3180 RM\$(10,1)="THE PATH NARROWS AND THE TREES CLOSE IN TO BLOCK MOST EXITS. :REM*25 3190 RM\$(11,1)="HERE IS A DEEP HOLE IN THE EARTH.{2 SPACES}IT{3 SPACES}IS BLACK AND COLD. :REM*107 3200 RM\$(12,1)="THE GROUND IS RISING AND GETTING VERY{3 SPACES}UNEVEN. :REM*168 3210 RM\$(13,1)="HERE THE TREES ARE STUNTED AND SICKLY.{2 SPACES}TALL BUSHES DOMINATE. :REM*192 3220 RM\$(14,1)="THE TRAIL ENDS IN A STEEP, ROCKY CLIFF. BELOW ARE TREE TOPS. :REM*113 3230 RM\$(15,1)="THE FOREST OPENS INTO A GRASSY MEADOW{3 SPACES}RICH WITH LIFE. :REM*28 3240 RM\$(16,1)="THIS PATH IS SO SMALL IT APPEARS TO HAVE BEEN MADE BY RABBITS. :REM*236 3250 RM\$(17,1)="THE PATH WIDENS HERE AND IS BORDERED{4 SPACES}BY OLD TREE STUMPS. :REM*235 3260 RM\$(18,1)="HERE IS A CLUTTERED YARD BEFORE AN OLD{2 SPACES}CABIN. :REM*23 3270 RM\$(19,1)="YOU STAND ON THE BROKEN-DOWN PORCH OF{3 SPACES}THE HERMIT'S CABIN. :REM*237 3280 P\$(0)="(CTRL 6){4 CRSR RTs}{5 COMD +s}"+CHR\$(13) :REM*45 3290 P\$(1)="(CTRL 6){2 CRSR RTs}{7 COMD +s}"+CHR\$(13) :REM*52 3300 P\$(2)="(2 CRSR RTs){10 COMD +s}"+CHR\$(13) :REM*56 3310 P\$(3)="(COMD 2){4 CRSR RTs}{2 COMD +s}"+CHR\$(13) :REM*105 3320 P\$(4)="(4 CRSR RTs){2 COMD +s}"+CHR\$(13) :REM*210 3330 P\$(5)="(4 CRSR RTs){2 COMD +s}"+CHR\$(13) :REM*228
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# SPECIAL DELIVERY

<pre> 3340 P\$(6)="{4 CRSR RTs}{3 COMD +s}{CTRL 1}"+CHR\$(13) :REM*168 3350 FORZ=0TO6:PI\$(0)=PI\$(0)+P\$ (Z):NEXT :REM*190 3360 P\$(7)="{20 CRSR RTs}" :REM*17 3370 P\$(8)=P\$(7)+"{CTRL 6}{2 CR SR RTs}{5 COMD +s}"+CHR\$(1 3) :REM*96 3380 P\$(9)=P\$(7)+"{CTRL 6}{2 CR SR RTs}{7 COMD +s}"+CHR\$(1 3) :REM*78 3390 P\$(10)=P\$(7)+"{CRSR RT}{10 COMD +s}"+CHR\$(13) :REM*186 3400 P\$(11)=P\$(7)+"{COMD 2}{4 C RSR RTs}{2 COMD +s}"+CHR\$( 13) :REM*84 3410 P\$(12)=P\$(7)+"{4 CRSR RTs} {2 COMD +s}"+CHR\$(13) :REM*164 3420 P\$(13)=P\$(7)+"{3 CRSR RTs} {3 COMD +s}"+CHR\$(13) :REM*92 3430 P\$(14)=P\$(7)+"{2 CRSR RTs} {4 COMD +s}{CTRL 1}"+CHR\$( 13) :REM*180 3440 FORZ=8TO14:PI\$(1)=PI\$(1)+P \$(Z):NEXT :REM*16 3450 P\$(15)="{4 CRSR RTs}***** ***(COMD L){14 COMD Es}{CO MD J}*****"+CHR\$(13) :REM*33 3460 P\$(16)="{4 CRSR RTs}***** ***(COMD L){14 COMD Is}{CO MD G}*****"+CHR\$(13) :REM*186 3470 P\$(17)="{4 CRSR RTs}***** ***(COMD L){14 COMD Is}{CO MD G}*****"+CHR\$(13) :REM*181 3480 P\$(18)="{4 CRSR RTs}***** ***(COMD L){14 COMD Is}{CO MD G}*****"+CHR\$(13) :REM*164 3490 P\$(19)="{4 CRSR RTs}***** ***(COMD L){14 COMD Is}{CO MD G}*****"+CHR\$(13) :REM*215 3500 FORZ=15TO19:PI\$(2)=PI\$(2)+ P\$(Z):NEXT :REM*147 3510 P\$(20)="{14 CRSR RTs}" :REM*54 3520 P\$(21)=P\$(20)+"{CTRL 8}{6 COMD +s}"+CHR\$(13):REM*164 3530 P\$(22)=P\$(20)+"{2 CRSR RTs }{CTRL 8}{9 COMD +s}"+CHR\$( 13) :REM*226 3540 P\$(23)=P\$(20)+"{CTRL 8}{6 COMD +s}{2 SPACEs}{3 COMD +s}"+CHR\$(13) :REM*18 3550 P\$(24)=P\$(20)+"{3 CRSR RTs }{CTRL 8}{5 COMD +s}"+CHR\$( 13) :REM*41 3560 P\$(25)=P\$(20)+"{4 CRSR RTs }{CTRL 1}{2 COMD +s}"+CHR\$( 13) :REM*49 3570 P\$(26)=P\$(20)+"{4 CRSR RTs </pre>	<pre> }{3 COMD +s}"+CHR\$(13) :REM*246 3580 P\$(27)=P\$(20)+"{4 CRSR RTs }{5 COMD +s}"+CHR\$(13) :REM*60 3590 FORZ=21TO27:PI\$(7)=PI\$(7)+ P\$(Z):NEXT :REM*99 3600 P\$(28)="{11 CRSR RTs}" :REM*213 3610 P\$(29)=P\$(28)+"{11 COMD +s }"+CHR\$(13) :REM*32 3620 P\$(30)=P\$(28)+"{CRSR RT}{9 COMD +s}"+CHR\$(13) :REM*191 3630 P\$(31)=P\$(28)+"{2 CRSR RTs }{6 COMD +s}{CTRL 1}"+CHR\$( 13) :REM*113 3640 FORZ=29TO31:PI\$(3)=PI\$(3)+ P\$(Z):NEXT :REM*8 3650 P\$(32)="{CTRL 6}{3 CRSR RT s}{4 COMD +s}"+CHR\$(13) :REM*250 3660 P\$(33)="{2 CRSR RTs}{6 COM D +s}"+CHR\$(13) :REM*147 3670 P\$(34)="{CRSR RT}{7 COMD + s}"+CHR\$(13) :REM*210 3680 P\$(35)="{8 COMD +s}{CTRL 1 }"+CHR\$(13) :REM*155 3690 FORZ=32TO35:PI\$(4)=PI\$(4)+ P\$(Z):NEXT :REM*126 3700 FORZ=1TO4:P\$(35+Z)=P\$(28)+ P\$(31+Z):NEXT :REM*247 3710 FORZ=36TO39:PI\$(5)=PI\$(5)+ P\$(Z):NEXT :REM*200 3720 FORZ=1TO4:P\$(39+Z)=P\$(7)+P \$(31+Z):NEXT :REM*19 3730 FORZ=40TO43:PI\$(6)=PI\$(6)+ P\$(Z):NEXT :REM*220 3740 DATA0,8,0,0,8,0,0,8,0,0,8, 0,0,0,42,0,0,38,0 :REM*10 3750 DATA0,170,0,0,170,0,0,10,0 ,0,42,0,14,170,0,14,170,0 :REM*212 3760 DATA12,170,0,0,42,128,0,42 ,128,0,42,176,0,42,176,0,4 2,176 :REM*19 3770 DATA15,234,128,15,234,0,0, 0,0 :REM*221 3780 FORZ=0TO62:READX:POKE832+Z ,X:NEXT :REM*108 3790 DATA0,0,0,8,0,0,8,0,0,8,0, 0,8,0,0,8,0,0,0 :REM*159 3800 DATA8,0,0,8,0,0,42,0,0,166 ,0,0,42,160,0,2,168,0 :REM*249 3810 DATA2,170,0,2,170,128,2,17 0,160,10,170,168,10,170,16 8,10,170,171 :REM*147 3820 DATA48,0,171,48,0,163,240, 63,160 :REM*219 3830 FORZ=0TO62:READX:POKE896+Z ,X:NEXT :REM*170 3840 DATA0,0,0,0,0,128,0,2,0,0, 8,0,0,32,0,0,128,0 :REM*84 3850 DATA2,0,0,42,0,0,166,0,0,1 70,0,0,8,0,0,10,170,172 :REM*200 3860 DATA10,170,172,42,170,160, 128,170,160,32,2,160,12,0, </pre>	<pre> 160,0,0,32 :REM*239 3870 DATA0,0,10,0,0,0,0,0,0,0 :REM*142 3880 FORZ=0TO62:READX:POKE96+Z ,X:NEXT :REM*241 3890 DATA0,0,0,0,0,0,0,0,0,0,0, 0,0,12,0,0,12,0 :REM*128 3900 DATA0,12,0,2,130,0,6,146,0 ,10,160,128,2,128,32,2,128 ,8 :REM*63 3910 DATA2,128,2,2,128,2,2,130, 130,2,138,162,0,170,170,0, 42,160 :REM*80 3920 DATA0,0,0,0,0,0,0,0,0,0 :REM*93 3930 FORX=0TO62:READSP(X):NEXT :REM*170 3940 DATA0,0,0,0,0,0,0,0,0,0,0, 0,0,48,0,0,48 :REM*91 3950 DATA0,0,48,2,128,32,6,144, 32,10,160,128,2,128,32,2,1 28,8 :REM*162 3960 DATA2,128,2,2,128,2,2,130, 130,2,138,162,0,170,170,0, 42,160 :REM*166 3970 DATA0,0,0,0,0,0,0,0,0,0 :REM*139 3980 FORX=63TO125:READSP(X):NEX T :REM*117 3990 FORZ=126TO188:READSP(Z):NE XT :REM*170 4000 DATA192,0,0,192,0,0,192,0, 0,192,3,240,192,3,144,192, 3,176 :REM*134 4010 DATA192,3,189,255,255,191, 255,255,192,255,255,192,25 5,255,192,255,255,192 :REM*173 4020 DATA192,0,192,192,0,192,19 2,0,192 :REM*212 4030 DATA192,0,192,192,0,192,19 2,0,192 :REM*174 4040 DATA192,0,192,192,0,192,0, 0,0 :REM*93 4050 RM(0)=1:PRINT"(SHFT CLR)": RETURN :REM*89 </pre>
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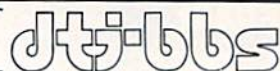
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
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## RUN'S CHECKSUM

TYPE IN RUN'S CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running. When typing in a program from RUN, first load and run RUN'S Checksum. The screen will display a SYS number that deactivates and reactivates the Checksum. Always disable RUN'S Checksum before attempting to run another program. Note: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

With this new version, when you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears in the home position. If this number matches the checksum value in the program listing, the line is correct. If the number that appears *doesn't* match the checksum value, compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing until all the lines have been correctly typed. Then deactivate RUN'S Checksum, using the SYS number. Save the finished program.

All the graphics and control characters in the listings in RUN have been translated into understandable key combinations. They are the instructions you see inside the curly braces. For example, {SHIFT L} means you hold down the shift key while you press the L key. You do *not* type in the curly braces. What appears on the screen will look quite different from what is designated inside the braces. Here are some more examples:

{22 SPACES}—press the space bar 22 times

{SHIFT CLR}—hold down the shift key and press the clr-home key

{2 CRSR DNs}—press the cursor-down key twice

{CTRL 1}—hold down the control key and press the 1 key

{COMD T}—hold down the Commodore logo key and press the T key

{FUNCT 1}—press the F1 key

{5 LB.s}—press the British pound key (*not* #) five times

### Listing 1. RUN'S Checksum program.

```

10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960)THEN MO=64:SA=49152
30 FOR I=0TO169:READB:CK=CK+B:POKE SA+I,B:NEXT
40 IFCK<>20651 THENPRINT"DATA ERROR!":END
50 POKESA+110,240:POKESA+111,38:POKESA+140,234
60 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":PRINT
70 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128 THEN 100
80 POKESA+13,124:POKESA+15,165:POKESA+25,124:POKESA+26,165
90 POKESA+39,205:POKESA+41,21:POKESA+123,205:POKESA+124,189
100 POKESA+4,INT(SA/256):SYS SA:NEW
110 DATA 120,162,24,160,13,173,4,3,201,24,208,4,162,13,160,67,142,4,3,140
120 DATA 5,3,88,96,32,13,67,152,72,169,0,141,0,255,133,176,133,180,166,22
130 DATA 164,23,134,167,132,168,170,189,0,2,240,58,201,48,144,7,201,58,176
140 DATA 3,232,208,240,189,0,2,240,42,201,32,208,4,164,180,240,31,201,34
150 DATA 208,6,165,180,73,1,133,180,230,176,164,176,165,167,24,125,0,2,133
160 DATA 167,165,168,105,0,133,168,136,208,239,232,208,209,169,42,32,210
170 DATA 255,165,167,69,168,170,169,0,32,50,142,169,32,32,210,255,32,210
180 DATA 255,169,13,32,210,255,104,168,96,104,170,24,32,240,255,104,168
190 DATA 96,56,32,240,255,138,72,152,72,24,162,0,160,0,32,240,255,169
200 DATA 42,208,198
    
```

JULY

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### IN ADDITION—

*RUN*'s regular departments and columns provide lots more, including reviews, type-in listings, programming tips and answers to reader questions.

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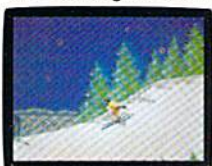
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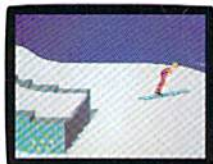
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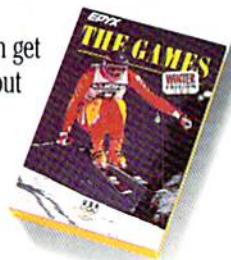
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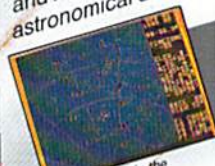
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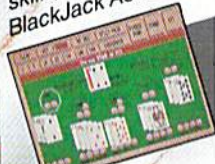


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